Journal OF THE AMERICAN DIETETIC ASSOCIATION

VOL. 24, NO. 12 DECEMBER 1948

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A.D.A. Loans for Graduate Study

The Dietitian's Role in the National Hospital Program

A.D.A. Annual Meeting, Denver, October 10-14, 1949

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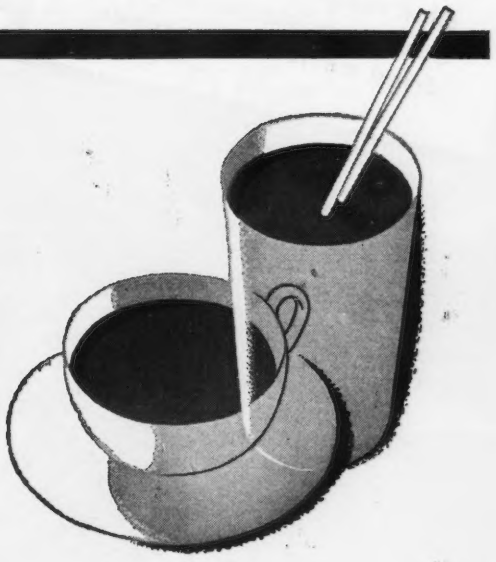

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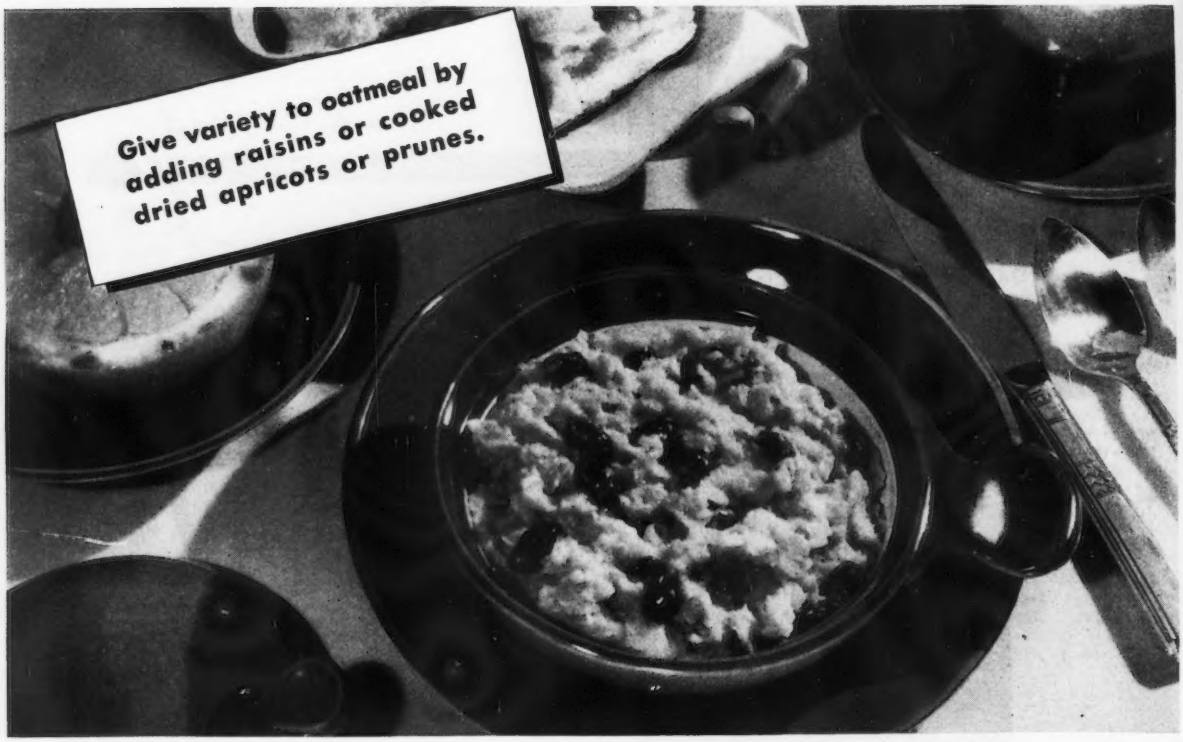

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Doctors and dietitians have long agreed that oatmeal ranks first in nutritive value among cereals. In high protein, food energy, vitamin B_1, and iron content, it leads all other whole grain breakfast foods.

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DOUBLE BOILER METHOD: Add salt to water. Heat to boiling. Add Quaker Oats gradually, stirring just enough to prevent lumping. Place top of double boiler over bottom filled to ⅓ capacity with boiling water. Cover and cook 10 to 20 minutes (or longer), stirring occasionally.*

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CALCIUM	1.12 Gm.	VITAMIN C	30.0 mg.
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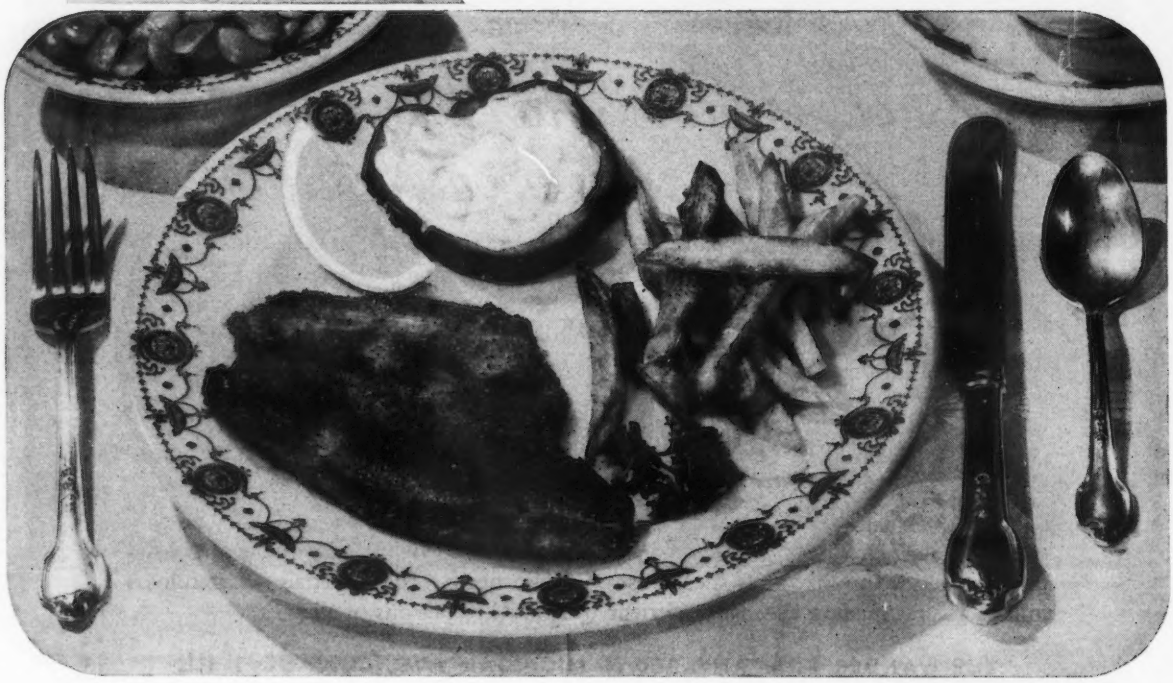
Primex-fried Foods



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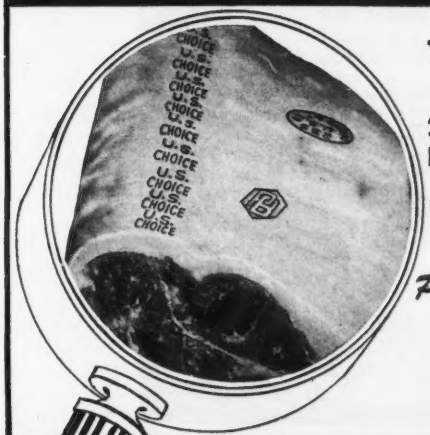

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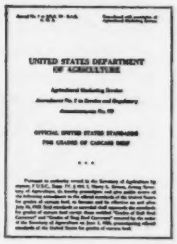

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THE HOUSE OF PERSONALIZED SERVICE
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The Significance of Breakfast in Convalescence

Prompt correction of disrupted metabolic processes, the aftermath of disease or trauma, is ever a requisite in convalescence. To this end increasing recognition is being given to replenishment of the body's impaired nutrient stores by a carefully chosen dietary, partitioned equally over the day's three meals. Nutrition parity of the three meals minimizes both the digestive burden and the metabolic stress, and effects efficient nutrient utilization. Breakfast adequacy in convalescence, therefore, is especially significant.

A useful guide to an adequate and appetizing breakfast in convalescence is the universally commended basic breakfast pattern consisting of fruit, ready-to-eat or hot cereal, milk, bread and butter. Other suitable foods may be added as required if specific nutrient and caloric needs are high.

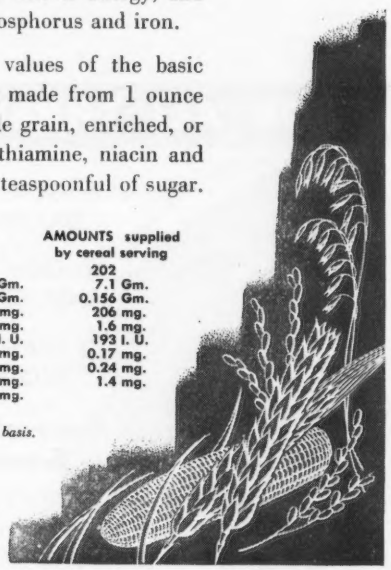
The cereal serving—hot or ready-to-eat breakfast cereal, milk, and sugar—is the distinctive main dish of this breakfast. It economically provides a noteworthy portion of the day's needs of biologically complete protein, B-complex vitamins, quickly available caloric energy, and the important minerals calcium, phosphorus and iron.

The table depicts the nutrient values of the basic breakfast and of the cereal serving made from 1 ounce of ready-to-eat or hot cereal* (whole grain, enriched, or restored to whole grain values of thiamine, niacin and iron), 4 fluid ounces of milk, and 1 teaspoonful of sugar.

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

BASIC BREAKFAST	TOTALS supplied by Basic Breakfast	AMOUNTS supplied by cereal serving
Orange juice, 4 fl. oz.;		
Ready-to-eat or Hot Cereal, 1 oz.;	CALORIES..... 611	202
Whole Milk, 4 fl. oz.;	PROTEIN..... 20.7 Gm.	7.1 Gm.
Sugar, 1 teaspoon;	CALCIUM.....0.465 Gm.	0.156 Gm.
Toast (enriched, white), 2 slices;	PHOSPHORUS.... 488 mg.	206 mg.
Butter, 5 Gm. (about 1 teaspoon);	IRON..... 3 mg.	1.6 mg.
Whole Milk, 8 fl. oz.	VITAMIN A..... 1074 I. U.	193 I. U.
	THIAMINE..... 0.52 mg.	0.17 mg.
	RIBOFLAVIN..... 0.87 mg.	0.24 mg.
	NIACIN..... 2.3 mg.	1.4 mg.
	ASCORBIC ACID.. 64.8 mg.	

**Composite average of all breakfast cereals on dry weight basis.*



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135 South La Salle Street • Chicago 3

Report of the Executive Board, 1947–48[1]

HELEN A. HUNSCHER

President, The American Dietetic Association, and Head, Home Economics Department, Western Reserve University, Cleveland

IT IS difficult, actually impossible, for anyone close to activities and responsibilities of an organization to observe or evaluate accomplishments or failures with great accuracy—rather this is the work of historians. An attempt will be made, however, to estimate approximately if some small progress has been made in attaining the Association's immediate and longtime objectives.

A report on problems, activities, responsibilities, and success has been chosen rather than to attempt a philosophical presentation. A rereading of the statement made last year in "Our Objectives" (1) convinced me that the ideas remain as much needed in practice now as last fall and will continue so for a long time.

As I summarize briefly, all too briefly, the work of committees and the Executive Board, I trust that you will resolve to read their complete reports in the *Proceedings*. I trust, also, that you know that the Executive Board members, elected and appointed, and their many committees, together with the Association staff, make up an untiring team of workers in the interest of the Association. Where we have failed, lack of time, facilities, and abilities have been the reasons. Each individual has carried her prescribed load and more. We trust that the evaluation of the year's work will show you that we have made some progress toward the objectives of our Association and our profession.

EXTRAORDINARY RESPONSIBILITY

The Executive Board of 1947–48 had four special problems or assignments in addition to the usual heavy responsibilities of each officer for the professional program and contacts. These were:

(1) Entering into an active public relations program with the aid of a consultant
(2) Evolving plans for reorganization of the Association
  (a) To work out an expansion of activities and a mechanism for effective leadership and functioning in the House of Delegates
  (b) To increase the efficiency of management in activities and business of the Association
(3) Facing and adjusting to the ravages of inflation without interfering with essential services to members
(4) Initiating work with a Council of the House of Delegates for obtaining better coordination of the activities of the Association.

PUBLIC RELATIONS

A consultant in public relations, J. Walter Thompson Company, was employed as of December 1, 1947, to aid in making the dietetic profession better understood by other professions and the public at large and in promoting an extensive recruiting program. Our Committee on Public Relations—which encompasses Vocational Guidance and Educational Exhibits, both planning and implementing—has worked to promote and facilitate the efforts of all members and groups of members in furthering their own public relations programs. There have been two fundamental aims: (a) the vital importance of encouraging more qualified people to enter the profession and (b) to set about the job of enhancing the reputation of the profession among hospital administrators and those in medicine, business, education, and other fields. The sum total of evidenced enthusiasm and the results are reassuring that the leadership and plans have been productive and worth while. Elizabeth Perry and Helen Robertson, Co-Chairmen, have a right to be proud of the work of their committee in collaboration with the consultants. Their report and recommendations will be presented for consideration. It should be noted that such a large enterprise, with a committee and a consultant, has necessarily increased the responsibilities and work of the Executive Board and particularly of the staff members in the Association's office.

REORGANIZATION AND REVISION OF THE CONSTITUTION

The Reorganization Committee, elected last year, has worked hard and productively. They have, by means of a plan, attempted to answer the basic needs stated last year by our Secretary, Lillian Storms Coover: "This House of Delegates should be equipped by means of committees, each with defi-

[1] Presented to the House of Delegates at the 31st Annual Meeting of the American Dietetic Association on October 18, 1948, in Boston.

nite and defined functions, appointed to operate continuously on matters of interest and concern to our organization, to clarify the issues of interest which may be presented, and after study to present them to this body in such a form that the House of Delegates will be in a position to act efficiently and expeditiously." Your committees have attempted to do this very thing which, if carried through thoughtfully and carefully, will vitalize our House of Delegates.

As progress reports on reorganization have reached you, it is to be hoped that you felt their assignment had been faithfully carried through to recommendations whether already placed before you in the President's letter or in the JOURNAL or to be presented for consideration of the House of Delegates and the total membership. As you know, reorganization means revision of the Constitution and that this legal document is changed by vote of the individual members.

Revision of the Constitution and incorporation of plans for making the House of Delegates a vital working organization required activity of a special committee. A Review Committee on Reorganization of the total Association was selected. It seemed wise to incorporate the Reorganization and its Review Committees together with the By-Laws Committee of the House, so that those who were recharting the Association's course would also be rewriting the Constitution and the By-Laws.

Several releases concerning plans to strengthen the organization have gone to each member through the JOURNAL, and the committees will report to the House of Delegates and to the membership. They will be seeking ideas to help accomplish, in the best way, the most satisfactory plan to permit the Association, in all phases, to function most efficiently, most democratically, and most professionally. Study of the organization chart will show that the much-needed committee structure is given to the House of Delegates. We have groped since 1937 at the Richmond, Virginia meeting, when the former House of Delegates was created. The Constitution and By-Laws adopted in 1944 did not authorize committees to study and recommend proposals to the House nor to the Executive Board as a basis for functioning in the House. Expansion of activities in the House makes it essential that each delegate be informed, fully informed, concerning details of the Association's responsibilities and endeavors in order to assume the increased duties being proposed.

The aim to make the government of the Association more democratic involves a change from the individual to a group mind and a willingness to accept responsibility for work and sacrifice for the general good. Not all members are fully informed about the programs, activities, and projects of the Association, in spite of the fact that clearcut reports are published in the JOURNAL, the *Proceedings*, and other printed material. Not until members take interest enough to know the past and the present endeavors, principles of operation, and plans can there be true democratic procedure. Whether the democracy be absolute (direct by individuals) or representative (indirect), it is essential that participants be well informed and willing to work in the interest of the whole.

The Constitution Committee has incorporated suggestions for several changes of official dates. Such changes would make for more efficient management, better planning of the professional program, and smoother execution of business. These mechanisms become more important as we grow. Our membership has doubled since 1939 and increased one-fourth since 1944. Procedures must change with augmented numbers, activities, and responsibilities.

Elizabeth Perry, Chairman, the Reorganization Committee of the House of Delegates; Anna Boller Beach, Chairman of the Review and Constitution Committees; and Evelyn Smith, Chairman, By-Laws Committee, will report to you. They, together with our legal counsel, have worked hard, thoughtfully, and well in the interest of facilitating the progress and security of the Association.

PROBLEMS OF STATE ASSOCIATIONS

As members of the Executive Board have attended state association meetings, certain needs for developing strength in the affiliated units have been observed. Too many state associations function from November to April; they fail to carry work beyond the spring or annual meeting. There is need for an all-year program and a system of overlapping of old and new officers and committee chairmen. Not only are more activities essential, but also more people in activities are needed in order to develop potential leadership. There was need for more state newsletters or bulletins. Several new ones have been initiated this year, and they are splendid for morale building and professional unity and pride. Some state associations with small memberships are well organized and busy, doing worthwhile work. The size of the membership does not have a definite relationship to strength nor to accomplishments. The leadership and followership with adequate charting seems to be the answer. It is anticipated that the proposed committee structure in the House of Delegates will be effective in guiding and strengthening each state association.

Although each member may be represented by a delegate, she is individually responsible for certain actions including the individual ballot. Every member should express herself in person or by proxie at meetings of members. There are certain actions which should be rightfully the responsibility of individual members rather than of the delegated few.

For example, revision of the Constitution is in the

hands of individual members—absolute democracy this is called. Our present Constitution rightfully calls for the opinion of individual members but restrictively limits any expression on matters in their control to annual meetings. This statement limited the present Executive Board from getting many emergency measures into action this year. The second amendment, sent out for general membership vote this year, was an effort to make the management of the Association, through the membership, more elastic and more in keeping with our fast-changing times. To give the "new look" or current approach to management of an association, so far as individual members' expression is concerned, the privilege of altering the Constitution at any time of the year, with due announcement, is essential. This can be done in person or by proxie at a called meeting, all of which gives every member an opportunity to express herself on every piece of business on which individuals are privileged to vote.

Financial problems were the essential topics of a special meeting of the Executive Board held in November, 1947. As you know, we were confronted with a realized and an anticipated deficit. Every financial transaction has been studied thoroughly, and several actions have been taken to increase income and decrease outgo without detriment to professional activities. We felt that it was our responsibility to explore all means for working out our problems ourselves rather than attempt to obtain outside aid. For better understanding of trends, our Treasurer, Fern Gleiser, prepared a report on income and expenditure on the per member basis for ten consecutive years. When these figures were shown at state association meetings, there was genuine understanding of the way present inflationary trends were affecting our Association. Although the figures were taken directly from the annual auditor's and published financial reports in our *Proceedings*, placing the interpretation on the basis of individual members made the situation more dramatic. The Treasurer will present a similar report which will bring the current situation to you.

Management and accounting consultants have studied procedures in our office and made recommendations which have been adopted by the Executive Board. These experts have outlined in a manual the most efficient, accurate, and time-saving procedures possible for the management of our financial business. They were put into effect on September 1, 1948, the beginning of this next fiscal year. This the Executive Board feels is a definite step forward in business procedures which will be beneficial now and in years to come.

The Council of the House of Delegates was elected in 1947 with the purpose of giving some basis for implementing the activities in the House. Its chairman, Mary McKelvey, has been present and contributed to all meetings of the Executive Board and officers, and at special meetings of importance. Although each officer present is truly a member of the House of Delegates, it was good to have this fine representation distinctly from the House. Many excellent contributions were made by Miss McKelvey.

PROFESSIONAL WORK

The work of the sections of the American Dietetic Association is the professional program which leads us most directly to our objectives stated in our Constitution. Theirs is the professional contribution of our members to those of our own and allied professions with related interests. This year, abstracts of the reports of these sections' work are available for members of the House of Delegates, but they and all members are referred to the complete reports which will appear in the *Proceedings*. The results of section projects of our Association are praised by those in other professions because of the valuable contributions which are made by our membership.

Many questions on what is being done and requests for initiation of work by our Association alone and cooperatively with others would be answered if our members, even the Delegates, had read the *Proceedings* of the Association over the past five years. We have done and are doing a great volume of valuable professional work, but I am convinced that the published reports are not read by all the members. Inestimable numbers of hours have been devoted by our members and known numbers of dollars have been spent to produce excellent products which members do not seem to read nor know have been published and sent to their desks. In order to make the best use of time and money spent, members should read and use the products available for them.

My appreciation and thanks go to the Section Chairmen: Adelia M. Beeuwkes, Community Nutrition; Doris Johnson, Diet Therapy; Phyllis Rowe, Food Administration; and Ercel Eppright, Professional Education, for their splendid programs of work and their thoughtful participation in the administration of the Association.

The Professional Education Section has a real challenge and responsibility in its work with the dietetic internships. The internships are one of the Association's strongest contributions to standards of the profession, and they need the finest leadership and reviewing techniques. Although we unfortunately did not have an Educational Director from February until September, the Board feels most fortunate in securing Mable MacLachlan for this position.

BOARDS AND COMMITTEES

The three Boards, namely, Journal, Placement, and Investigation, have continued their prescribed functions and have acted when called upon for help.

The committees listed on the roster of the Association have been active in their appropriate areas. Most of their work is reported by word or action and will appear in the *Proceedings*. These reports

are important to the profession, although they are not presented in person by the chairmen.

COOPERATION WITH OTHER ORGANIZATIONS

Many allied organizations call upon the American Dietetic Association to cooperate, to join with, and to be represented in their programs of work and meetings. Members of the Board and others deemed especially well qualified have taken on these important duties in the interest of service to the profession and as a factor in the public relations program. Some of these organizations are:

American Association for the Advancement of Science
American Diabetes Association
American Home Economics Association
American Hospital Association
American Nursing Association
American Public Health Association
Children's Bureau
Food and Nutrition Board of the National Research Council
National Conference on Family Life
National League of Nursing Education
National Vocational Guidance Association
Nutrition Foundation
United Nations' Educational, Scientific, and Cultural Organization
U. S. Public Health Service
Veterans Administration
Women's Bureau

I wish I could tell you about our interesting endeavors with each of these organizations because all are important to our progress in our public relations with other groups. Some of the reports will be included in the summary given by our Executive Secretary, Gladys E. Hall.

THE ASSOCIATION OFFICE

Problems of expanded office space, adjusting of JOURNAL office functions and personnel, increased activities, and changing personnel have plagued the Executive Board. Study of and devising of new procedures and policies for many functions have been and are being made effective. These, along with tremendous increases in prices for all services, have called for special committee study and action on organization and procedures. As members of the Executive Board have given reports at state association meetings concerning the business carried routinely in the office of the Association, greater appreciation is gained of the "bigness" of our business. Furthermore, much correspondence goes on with people of other professions as well as with our 8000 members. Incidentally, the latter do write many letters for information, for complaint, and (thank goodness!) occasionally for praise!

CHARTING THE WAY

Several statements of principles of procedure were written and adopted to give consistent guidance to committees in their work. They were for the Legislative Committee upon advice from our legal counsel; for the Foreign Student Committee, because of the wide variety of requests for help; for the Mary Swartz Rose Fellowship; and for the Marjorie Hulsizer Copher Memorial Award.

Since JOURNAL business makes up a large portion of the Association budget, great care was used to make the best use of this mechanism of carrying messages to members about affairs and to guard the relationship of income to outgo.

RECOGNITIONS

Recognitions which have come our way this year are led, I believe, by the award made by the Nutrition Foundation to the Association for "outstanding accomplishment" and "in recognition of leadership, inspiration, and diligence of its members in applying and in development of the science of nutrition—for the advancement of human health; and in further tribute to its members who, during the past thirty years, have steadily raised the professional standards of dietitians to their present high level of training and service." With the establishment of the Mary Swartz Rose Fellowship, to be awarded annually by the Association, the Nutrition Foundation has since made this recognition continuous.

We are proud of the invitation from the Food and Nutrition Board of the National Research Council for a liaison representative. The only other such invitation issued this year has gone to the American Institute of Nutrition.

The National Health Assembly saw many of our members invited as active participants in planning the future health program of our country. The Committee on Educational Preparation of Personnel restated our principles and requirements for dietitians and nutritionists. Furthermore, they pointed up our part in the educational preparation of other health personnel.

Doubtless the members of your Executive Board will be able in time to look back over the very busy and harassing past year and evaluate the progress made. We trust that evaluation will give us inner satisfaction for jobs well done, or reasonably well done. For the present our feelings are better expressed by Kipling:

> When earth's last picture is painted
> and the tubes are twisted and dried,
> When the oldest colors have faded
> and the youngest critic has died,
> We shall rest, and, faith, we shall
> need it—lie down for an eon or two,—

Perhaps then we can with enthusiasm add the last line:

> Till the Master of All Good Workmen
> shall set us to work anew!

REFERENCES

(1) HUNSCHER, H. A.: Our objectives. J. Am. Dietet. A. 23: 1033, 1947.

Application of Electronic Cooking to Large-Scale Feeding[1]

MARION C. BOLLMAN, SADIE BRENNER, LOIS E. GORDON, and MARY ECK LAMBERT[2]

Quartermaster Food and Container Institute for the Armed Forces, Chicago[3]

GREAT interest has been aroused in the recently introduced electronic method of thawing or cooking fresh, fresh frozen, and precooked frozen foods because of its potential advantages and unlimited possibilities for future use.

The chief possible advantages of this method are:

(a) Cooking speed.

(b) Savings in space and weight by the elimination of heavy and bulky pieces of cooking equipment.

(c) Increased retention of nutrients (1, 2).

(d) Bactericidal effects of the electromagnetic waves (3, 4).

A device for electronic cooking, the Radarange, has been in use for some time in restaurants. This range has been described and tested by Proctor and Goldblith (2). Their report deals with the application of this equipment to the baking of cakes, cooking of meat and fish, and the blanching of vegetables. Tests of this equipment have also been conducted by the United States Navy to determine its applicability for cooking aboard submarines (5).

The purpose of this investigation was to ascertain the practicability of electronic cooking for large-scale feeding operations. Although the capacity of the electronic range was limited to small-scale preparation, it was felt that the speed of cooking might compensate for the quantity cooked at any one time by permitting a short-order type of service for large-scale feeding operations. This type of feeding operation would eliminate the current necessity of long holding periods and result in improved appearance, acceptability, and nutritive value.

[1] This paper reports research undertaken by the Quartermaster Food and Container Institute for the Armed Forces and has been assigned number 223 in the series of papers approved for publication. The views or conclusions contained in this report are those of the authors. They are not to be construed as necessarily reflecting the views or indorsement of the Department of the Army. Received for publication September 21, 1948.

[2] Research and Development Branch, Military Planning Division, Office of the Quartermaster General.

[3] The authors gratefully acknowledge the interest of Drs. D. Melnick and H. D. Lightbody in this work.

PROCEDURE

Fresh, fresh frozen, and precooked frozen meat and vegetable products, as well as egg dishes, poultry, and baked items were selected for testing. The electronic range was used as the source of electronic heat, and the finished product obtained with this equipment was compared with that obtained by conventional methods of preparation. Since all parts of the floor of the oven of the range did not produce the same rate of heating, the center of the oven was used for cooking all single items. The electronic range was so regulated that 100 cc. of water at 70°F. (21°C.) would boil in 19 seconds. A hypodermic type pyrometer was used to record internal temperatures of the cooked products immediately after removal of the sample from the oven. Cooking in the electronic range was performed in tempered glassware (Pyrex), which permitted full penetration of the waves from all directions. High and low speeds of the electronic range were tested, but unless otherwise indicated the high speed was used. Weight of the food mass, shape, composition, temperature of product before cooking, and temperature and quantity of water used were factors influencing the length of the cooking periods in the electronic range.

Vegetables

Fresh and Frozen. The fresh vegetables studied included green snap beans, broccoli, cabbage, carrots, corn on the cob, peas, white potatoes, spinach, squash, and sweet potatoes. All were graded as being "high quality." They were purchased in quantity lots through the local Army market center. Studies on frozen vegetables were limited to asparagus, green snap beans, Lima beans, cauliflower, corn, peas, and spinach. The finished product was compared with that obtained by boiling and pressure cooking.

The procedure used for pressure cooking (in a 4-qt. pan with flexible-lid-type closure) was that given

in the manufacturer's directions, except that the quantity of water was increased for potatoes because scorching occurred. In boiling and in the procedure using the electronic range, sufficient boiling water to cover the vegetables was used, and the cooking was conducted in a covered glass utensil.[4] For boiled carrots and potatoes prepared in the electronic range, a more satisfactory product was obtained when the vegetables were added to cold water. After cooking, all samples were drained in a colander for 30 seconds and weighed immediately.

The weight of vegetable cooked and the weight of water varied with the vegetable (Tables 1 and 2), but ranged from 200 to 400 gm.[5] All samples were from the same lot and of the same variety. Whenever possible, individual vegetables were divided and parts of the same vegetable used for each cooking method to insure uniform sampling.

Subjective tests were conducted using a small panel of judges trained in food preparation to establish the cooking periods necessary to obtain uniform "doneness" in the same product cooked by each of the three methods. Internal temperatures were recorded but were not as reliable as the subjective tests in determining the degree of doneness except in the case of baked potatoes. Tests for general acceptability of the cabbage, carrots, baked potatoes, and beef patties were conducted by panels of taste judges consisting of approximately twenty-five persons.[6] The results are expressed as the mean rating for acceptability based on a one-to-ten scale ranging from excellent (10 points) to repulsive (1 point) (6). For all other foods, tests for acceptability were made by four to six staff members trained in food preparation. The score for acceptability represents a total score based on mean scores for flavor, texture, odor, and appearance respectively.

Meats

Beef Roasts. All tests on beef roasts were conducted on paired standing ribs of beef (graded U. S. Good) from the seventh to the twelfth rib. The meat was cut into two-rib roasts and boned before roasting. A tempered glass dish without cover containing a glass trivet to raise the roast from the bottom of the dish was used for cooking the meat in the electronic range, and an uncovered metal pan with metal trivet was used for conventional oven roasting at 300°F. (149°C.). The meat was cooked to a medium degree of doneness (internal temperature of 160°F. [71°C.]) (7). The roasts in the electronic range were turned during the cooking period. Juices were drained and the weight recorded immediately upon removal from the oven.

Beef Patties. The beef patties were made from one beef round. The meat was ground using a $\frac{1}{8}$-in. grind, salt and pepper were added, and patties 3 in. in diameter and $\frac{3}{4}$ in. thick weighing approximately 100 gm. were formed by machine. Patties were cooked to an average internal temperature of 156°F. (69°C.) in the electronic range and on a grill regulated to 350°F. (177°C.). In the electronic range method, patties were cooked singly and in batches of six. Each patty was placed in a beaker (600 cc.) to prevent splattering of the juices during the cooking period. The weights of the juice and patty were taken. The juices were not recoverable in the grill method. Meat temperatures were recorded within a 30-second interval upon removal from the oven or grill.

Pork Patties. The patties were made from pork shoulder, New York style. The meat was ground using a $\frac{3}{16}$-in. grind, and sugar, sage, salt, and pepper were added. The patties were prepared and cooked in the same manner as the beef patties, cooking to an internal temperature of 175°F. (79°C.).

Miscellaneous Meat Items. The applicability of the electronic range for cooking other cuts of meat was also explored. Tests were conducted on beef liver; pork chops; pork loin roasts; and T-bone, porterhouse, and club steaks. The samples of steak were of varying thicknesses, $\frac{1}{2}$ to $1\frac{1}{2}$ in., and were cooked rare, medium rare, and well done. The samples of beef liver and pork chop were sliced to a uniform thickness and pan broiled until well done. The same general procedure used for the beef roasts was followed for the pork loin roasts (Table 3).

Frozen Meats. A limited variety of fresh frozen meat samples were included in the study. Samples of steaks, beef liver, and pork chops were cooked without preliminary thawing in the electronic range and compared with samples prepared by conventional means. All replicate samples were of one uniform thickness and were cooked to the same degree of doneness (Table 3).

Miscellaneous Products

Chicken. A limited number of tests were conducted on broilers. The birds were cut in half and cooked at both the high and low speeds of the electronic range.

Eggs. Eggs were prepared scrambled, baked, poached, and as French and puffy type omelets. For scrambling, fresh milk and salt were mixed with the eggs before cooking. For baking, the eggs were broken into an ungreased dish, salted, and cooked. For poaching, eggs were added to hot water, then cooked. Standard recipes for French and puffy style omelets were used. The French style omelet was turned once during the cooking process.

Baked Products. Twelve oz. of bread dough, made

[4] Cabbage was cooked covered in the electronic range, but was cooked uncovered in the boiling water method.

[5] Potatoes, when cooked in batches of six, weighed approximately 1000 gm.

[6] These were conducted by the Food Acceptance Research Branch.

TABLE 1

Data for fresh vegetables cooked in the electronic range and by conventional cooking methods

METHOD OF COOKING	AVERAGE WEIGHT OF RAW SAMPLE (E.P.)	AVERAGE WEIGHT OF WATER ADDED	AVERAGE CHANGE IN WEIGHT DURING COOKING	COOKING TIME					NUMBER OF TESTS	ACCEPTABILITY RATINGS‡
				To bring to boil*	To return to boil	To reach pressure†	To cook	Total		
Broccoli—California-grown, Italian sprouting variety§										
	gm.	*gm.*	*% E.P.*	*min.*	*min.*	*min.*	*min.*	*min.*		*points*
Electronic range	301	450	−5	1½			5½	7	33	7.4
Boiled	300	450	4	6	3		7	16	33	6.5
Pressure-cooked	301	70	−1			5	⅝	5⅝	33	7.7
Cabbage—Wisconsin- and Indiana-grown, round domestic type§										
Electronic range	353	700	0	2½			6	8½	33	7.2
Boiled¶	351	691	0	6	4		15	25	33	7.2
Pressure-cooked	344	70	−3			5	1⅓	6⅓	33	7.4
Carrots—Imperator variety§										
Electronic range	219	110	−17				2¾	2¾	36	6.2
Boiled	223	130	−9	3	2		9	14	36	6.6
Pressure-cooked	227	70	−11			4	1	5	36	7.4
Potatoes§										
Boiled‖										
Electronic range	380	450	−17				6	6	12	6.0
Saucepan	380	450	−1	7	4		18	29	12	7.7
Pressure-cooked	381	100	−4			2	9	11	12	7.3
Baked**										
Electronic range										
Single	190		−25				2	2	51	7.8
Multiple	1103		−22				8	8	9	7.8
Electric oven—450°F.	185		−16				39	39	51	8.3
Green beans										
Electronic range	200	400	−9				7	7	2	7.9
Boiled	200	400					25	25	1	6.9
Corn on the cob										
Electronic range	271	0	−16††				¾	¾	4	9.6
Boiled	276	1816	15				10	10	1	9.2
Peas										
Electronic range	200	230	−3				4	4	2	6.3
Boiled	200	600	−5				15	15	1	6.4
Spinach										
Electronic range	100	50	−30				1¼	1¼	3	8.7
Boiled	100	15	−38				6	6	1	8.8
Sweet potatoes—Baked in skin										
Electronic range	184	0	−25				2	2	2	5.7
Electric oven—450°F.	201	0	−17				35	35	2	9.3
Squash—Zucchini, sliced										
Electronic range	200	200	−2				2½	2½	1	5.6
Boiled	200	90	2				6	6	1	6.3

* Boiling water was used for all vegetables prepared by boiling and for all vegetables except carrots and potatoes prepared in the electronic range.

† 15 lb. pressure.

‡ A one-to-ten scale was used. A score of 10 indicated "excellent," of 1, "repulsive." A rating of 5.5 or above was considered acceptable.

§ Vegetable was tested for nutritive retention as well as acceptability; therefore, many replicate tests were necessary and more detailed data on the results of the tests were recorded (10).

¶ Cooked uncovered. All other vegetables were cooked covered.

‖ Florida-grown, Red Bliss variety.

** Idaho-grown, Russett variety.

†† Cooked in the husk; therefore, this includes moisture lost from the husk.

by standard Army formula (8), were baked in a tempered glass loaf pan. Moisture analyses were made immediately after baking and after standing for 1¼ hr. Baking tests were also conducted using Army formulas for yeast-raised rolls and cherry and apple pies.

Precooked Frozen Foods

Tests were conducted to determine the efficiency of the electronic range for thawing and heating precooked frozen foods as well as complete precooked frozen meals. The food was considered completely thawed and properly heated when the internal temperature was 180°F. (82°C.). Comparisons of the electronic range and an electrically heated oven were made for relative efficiency in accomplishing the above purposes. The precooked frozen foods were thawed in 4-oz. portions contained in fiber-board cartons, also in 14-oz. portions placed in glass casseroles. The precooked frozen meals, consisting of a meat and two vegetables, were thawed on disposable, plastic-coated, fiber-board plates divided into three compartments.

TABLE 2

Data on frozen vegetables cooked in the electronic range and by conventional cooking methods

METHOD OF COOKING	AVERAGE WEIGHT OF RAW SAMPLE (E.P.)	AVERAGE WEIGHT OF WATER ADDED	AVERAGE CHANGE IN WEIGHT DURING COOKING	COOKING TIME*	NUMBER OF TESTS	ACCEPTABILITY RATING†
Asparagus						
	gm.	*gm.*	*% E.P.*	*min.*	*min.*	*points*
Electronic range	200	60	−15	3	2	7.1
Boiled	200	227	−7	8	1	7.6
Green beans						
Electronic range	200	120	0	3½	3	7.4
Boiled	200	240	0	12	1	6.5
Lima beans						
Electronic range	200	200	−3	5	1	6.9
Boiled	200	240	2	12	1	7.8
Cauliflower						
Electronic range	200	60	−20	3	2	6.1
Boiled	200	340	−4	5	1	5.7
Cut corn						
Electronic range	200	60	−5	2½	1	9.0
Boiled	200	227	0	6	1	8.2
Peas						
Electronic range	200	60	−11	2½	3	7.8
Boiled	200	227	−11	12	1	9.0
Spinach						
Electronic range	200	60	−5	2	1	8.7
Boiled	228	227	0	5	1	8.7

* Cooking time after the water had returned to a boil.

† A one-to-ten rating scale was used. A score of 10 indicated "excellent," of 1, "repulsive." A rating of 5.5 or above was considered acceptable.

RESULTS

Vegetables

Fresh Vegetables. The results of tests on vegetables cooked in the electronic range indicated that if the products were to compare favorably with those cooked by conventional methods special precautions would be necessary. It was noted that the vegetables had a tendency to dehydrate unless protected by water or a natural covering, such as the husk on corn or the jacket on potatoes. Loss of moisture in the electronic range, however, compared favorably with that encountered in the other methods of cooking (Table 1), when the vegetables were covered with water and cooked in a covered container. As the quantity of water was increased to obtain a more desirable product, the cooking time was also increased. However, the final cooking time was appreciably shorter than in the boiling water method, especially when the time needed to bring the water to a boil was included in the cooking time of the latter method. The time of cooking broccoli in the pressure cooker was 1 min. shorter than in the electronic range, 2 min. shorter for cabbage, although the time necessary to bring the cooker up to pressure (average of 4 min.) was included. For carrots and potatoes, the electronic range was 2 to 5 min. faster than the pressure cooker (including the time to bring to pressure).

One characteristic of the vegetables prepared in the electronic range was a crispness of texture which prolonged cooking did not decrease. However, an outer skin was formed which became thicker and tougher as the cooking period was increased. The cooking period was, therefore, held to a minimum to give the best possible degree of tenderness without producing an objectionable "skin" effect. Nevertheless, it was not possible to prevent the occurrence of the "skin" effect completely, even when sufficient water to cover the vegetable was used.

The results of acceptability tests showed that the color of the vegetables cooked by the electronic method compared favorably with the vegetables cooked in boiling water or in a pressure cooker. The color of leafy green vegetables prepared in the

TABLE 3

Data for fresh and frozen meats cooked in the electronic range and by conventional cooking methods

METHOD OF COOKING	AVERAGE WEIGHT				AVERAGE COOKING TIME	NUMBER OF TESTS	ACCEPTABILITY RATING*
	Before cooking (E.P.)	After cooking		Loss in sample during cooking			
		Solid	Liquid				
Beef patties—Fresh meat (14% fat when raw)†							
	gm.	*gm.*	*gm.*	*% E.P.*	*min.*		*points*
Electronic range							
Single	104	70	8	−32	1 min. 10 sec.	15	7.5
Multiple	634	430	92	−32	4	18	
Grilled	103	68	0	−34	24	18	7.9
Beef roasts—Fresh meat†							
Electronic range	1491	554‡	216	−63§	13	6	6.3
Electric oven—300°F.	1450	1106	99	−24	125	6	8.4
Pork patties—Fresh meat (32% fat when raw)†							
Electronic range							
Single	102	59	10	−42	1 min. 25 sec.	15	7.5
Multiple	618	391	89	−37	5	18	
Grilled	105	69	0	−34	20	18	7.9
Pork roasts—Fresh meat							
Electronic range	2099	1375		−34	14	2	7.4
Electric oven—325°F.	2099	1787		−15	131	2	7.8
Liver—Fresh meat							
Electronic range							
Seared	90	72		−20	3½¶	1	7.4
Not seared	91	69		−24	¾	4	6.1
Pan fried	90	68		−24	6	1	7.8
Pork chops—Fresh meat							
Electronic range							
Seared	138	85		−38	4½‖	1	8.3
Not seared	154	100		−35	1 min. 35 sec.	2	5.1
Pan fried	154	108		−30	20	1	8.5
Steaks—Fresh meat							
Electronic range							
Seared	128	94		−26	2½**	1	8.1
Not seared	122	93		−24	1	1	6.4
Broiled	108	82		−24	10	1	6.8
Liver—Frozen							
Electronic range							
Seared	90	66		−26	3½¶	1	6.9
Not seared	87	54		−38	1¼	3	4.1
Pan fried	90	70		−22	6	1	8.1
Pork chops—Frozen							
Electronic range							
Seared	164	100		−39	5½‖	1	4.8
Not seared	174	106		−39	2	4	2.8
Pan fried	152	106		−30	22	1	7.4
Steaks—Frozen							
Electronic range							
Seared	200	140		−30	3**	1	6.3
Not seared	222	140		−36	2	1	5.3
Broiled	220	142		−35	15	1	6.2

*A one-to-ten scale was used. A score of 10 indicated "excellent," of 1, "repulsive." A rating of 5.5 or above was considered acceptable.

†Samples were tested for retention of nutrients (10) as well as acceptability; therefore, many replicate tests were necessary and more detailed data on the results of the test were recorded.

‡Actual solids remaining after cooking weighed 838 gm., representing a weight loss during cooking of 44 per cent. However, only 554 gm. were edible.

§ Percentage loss when hard, inedible portion had been trimmed away.

¶ Including 3-min. searing period.

‖ Including 4-min. searing period.

**Including 2-min. searing period.

electronic range was superior to that of the pressure cooked samples and was similar to that obtained by boiling. No flavor differences could be detected among the samples prepared by the three methods. However, the texture of the samples cooked in the electronic range was described as crisp, undercooked, and tough.

Frozen Vegetables. The chief difficulty encountered in successfully thawing and cooking frozen foods was an uneven thawing and cooking effect. (Acceptability scores are given in Table 2.) The following method was devised in order to insure an evenly cooked product. The frozen material with a small quantity of water was inserted in the oven, thawed for 30 to 60 seconds, then removed from the oven. The slightly thawed mass was broken into small pieces, replaced in the oven, and the cooking continued. It was advisable to spread the pieces to effect minimum overlapping in the cooking vessel. Although this procedure limits the quantity of vegetables that can be prepared at one time, it minimizes dehydration which occurs to some degree before the vegetable is thoroughly cooked. The samples cooked in the electronic range had ratings for acceptability not appreciably different from the control samples. A slight crispness of texture was noted for the frozen as well as for the fresh vegetables prepared in the electronic range.

Meat

Fresh and Frozen Meats. Tests on meat samples prepared in the electronic range indicated that modifications in the standard cooking procedure would be necessary if the products were to have as high an acceptance as samples prepared by conventional methods. The chief difficulty encountered in the preparation of relatively thin cuts of meat, such as patties, steaks, and chops, was the inability to obtain the familiar browned surface. These products tended to have a grey color which detracted from the usual appetizing appearance. This difficulty was successfully overcome by quickly browning in a broiler, frying pan, or on a grill before cooking in the electronic range. This was noted especially in the cooking of pork chops and liver. The preliminary browning increased the rating for acceptability for pork chops from 5.1 to 8.3 points and for liver from 6.1 to 7.4 points. With larger cuts of meat, such as beef or pork roasts, which required longer cooking, browning occurred at the surface but was in the form of an objectionable hard crust.

It was found that the larger cuts were difficult to cook evenly by electronic energy. The cooking appeared to be from the outside surface toward the center as judged by the simultaneous presence of a hard brown outside crust and several zones of decreasing doneness as the center of the roast was approached. In the roasts studied, it was impossible to obtain a sufficient degree of doneness in the center without the occurrence of surface dehydration and the rendering of fat from the outer parts. This phenomenon posed an especially difficult problem in pork roasts for which a high internal temperature is required for safety.

It is apparent from Table 3 that the weight loss in roasts prepared in the electronic range was approximately 20 per cent greater than that occurring in the ordinary roasting method. This loss in weight was due to the leaching of excessive amounts of water and the rendering of surface fat. An additional 19 per cent waste occurred in the sample cooked in the electronic range, which was caused by necessary trimming of the outer overcooked sections that were hard and inedible. In the case of thin cuts of meat, such as the patties, chops, and steaks, cooking was much more uniform and dehydration did not occur to an appreciable extent. The change in weight occurring in these products as a result of cooking was approximately the same for products cooked in the electronic range and by the conventional method, although the cooking time was considerably less in the electronic range (Table 3).

Cooking time for a 3-lb. beef roast was approximately 13 min. in the electronic range as compared to approximately 2 hr. in the electric oven (300°F.). Standardization of cooking time, however, for any given weight of meat was not feasible, since the shape and fat content of the meat affected the time necessary to produce the proper degree of doneness at the center of the roast. It was found that the fat portions heated more rapidly than the lean and that boning the roasts shortened the cooking period and decreased to some extent the unevenness of heating.

Conductors made of a plastic material were supplied by the manufacturer to help distribute the energy waves throughout the food mass and thus overcome the difficulty of uneven cooking. No apparent differences were observed in the proportion of overdone to undercooked parts in roasts in which the conductors were used. Another variable tested in an attempt to decrease or prevent the overcooking of the surface was application of the low speed in the electronic range. Low speed had the advantage of producing less surface dehydration and overcooking in the initial stages, but this effect was nullified by the increased cooking time needed to achieve the same degree of doneness.

The roasts cooked in the electronic range after the hard, inedible portion was trimmed away, were rated acceptable but significantly lower (6.3 points) than the sample cooked in the standard oven (8.4 points). The lower ratings of the samples cooked in the electronic range were partially due to low scores for appearance and texture. The judges rated the samples dry, lacking in juiciness, not uniformly cooked, and underdone in the center. Individual scores for flavor and odor were not appreciably different.

Miscellaneous Products

Chicken. The results of one study of chicken indicated that a satisfactory fried chicken could be obtained if the chicken were browned in hot fat prior to cooking in the electronic range. Two min. in the electronic range then completed the cooking. By eliminating the browning step, a satisfactory stewed chicken was obtained in 4 min. Best results were achieved when the low speed was used.

Eggs. The scrambled eggs, poached eggs, and French omelets made in the electronic range compared favorably in color, odor, flavor, and texture to those produced by the usual cooking equipment. Puffy omelets puffed during cooking, but collapsed immediately upon removal from the range. Generally, eggs cooked well when the yolk and white were mixed. Only fair results were obtained when the egg was left whole because of the difference in heating rate between the white and the yolk, the yolk becoming hard and rubbery before the white was completely cooked.

Baked Products. The bread, rolls, and pies were baked in the electronic range for approximately 2 to 4 min. The products lacked the brown crust usually associated with bread, rolls, and pie. The bread and rolls had good volume, but the texture was tough and rubbery. During baking, the dough lost considerable moisture which accumulated in the baking dish, became re-absorbed (causing a soggy bottom), but was later rapidly lost on standing. All baked products were considered unsatisfactory. No attempt was made to modify baking formulas or to develop special techniques. Work along these lines would probably improve the results.

Precooked Frozen Foods

The most satisfactory results for thawing and heating precooked frozen foods were obtained when only one type of food was present in the electronic range at one time, since differences in food composition and structure resulted in different degrees of heat penetration. Another factor which affected the final product was the method of packing. For example, in products such as sliced meats and vegetables, where overlapping occurs, thawing was uneven to such a degree that one part of the item was frequently overheated while other parts remained frozen. This effect has also been noted by Morse and Revercomb (9).

Since different foods have different heating rates, the problem of heating complete meals without overheating or underheating certain components becomes complicated. It should be pointed out, however, that this problem is not peculiar to the electronic range.

The relative time of thawing and heating a complete meal in the electronic range was 3 min. as compared to 20 to 30 min. for the electric oven.

DISCUSSION

As stated previously, this study was undertaken to evaluate the applicability and practicability of the electronic range to a large-scale feeding operation such as is encountered in Army food service. It was felt that the speed of cooking might make possible a short-order type of service which would overcome the disadvantage of small quantity preparation and eliminate the need for holding and reheating foods, thereby resulting in the service of a more nutritious, better appearing, and more acceptable product. The electronic range was, therefore, evaluated from the standpoint of the speed of preparation of quantities sufficient to serve 100 men in approximately a 15-min. serving period.

Acceptability

From the data presented (Tables 1, 2, 3), it is seen that a great variety of acceptable products can be obtained in the electronic range. The large number of vegetables tested and the thin cuts of meat, such as patties, chops, liver, and steaks, were comparable to products prepared by the other methods used, when the precautions previously pointed out (pre-browning of meat and prevention of moisture loss in vegetables) were taken. Acceptable products could be obtained with larger cuts of meat, but the weight losses in the electronic range would make electronic cooking uneconomical. Several acceptable egg dishes also could be prepared. Thawing and cooking of frozen foods could also be accomplished satisfactorily by the electronic range. However, some difficulty was encountered in thawing precooked frozen meals, primarily because of the method of packing and the variation in food composition, both factors resulting in uneven heating. Acceptable baked products could not be obtained when present recipes were employed. Although no extensive studies were undertaken to improve the baked products, preliminary work on modification of recipes indicated that improvement in the quality of the baked products produced by the electronic range was possible.

Time-Saving Factor

Calculations based on the cooking time data presented (Tables 1, 2, 3) indicated that with one electronic range in operation for the preparation of any one item, numerous repeat cookings extending beyond the specified 15-min. serving period would be necessary to provide the needed quantity of food. The serving line would thus be delayed and result in inefficient utilization of the serving period. For instance, under the conditions of the test, the optimum capacity of the electronic range used was six beef patties. To serve 100 men one beef patty per man, or 100 patties, would require 1 hr. of cooking time on the basis of 4 min. for six beef patties. The time necessary for the preliminary browning step, es-

sential if the grey color is to be avoided, is not included in the 1-hr. estimate. Similar time studies may be made for other items. It is apparent, therefore, that the electronic range is not sufficiently rapid to make feasible a short-order type of service in large-scale Army feeding operations as described. However, the utilization of this type of equipment for special feeding operations, such as between-meal service for a small number of men (an air crew returning from a mission, guard duty personnel, Army post exchange, and so on), has many possibilities.

SUMMARY

Cooking of several types of foods was tested in the electronic range and compared with conventional methods of preparation. The foods included many types of vegetables, thin cuts of meat, roasts, eggs, and baked products. Cooking and thawing of many fresh and frozen products, except for the baked items, compared favorably in acceptability with those cooked by conventional methods if the special cooking techniques discussed were used. The cooking of large cuts of meat was found to be uneconomical due to excessive losses in weight during cooking. It was also found that cooking with the electronic range was not sufficiently rapid to justify its use in a short-order type of service in large Army feeding operations.

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The Flavor of Meat

In the May–June issue of *Food Research* (*13: 179*, 1948), E. C. Crocker reports on an investigation of the nature of meat flavor. The report covers specifically the influence of boiling and low-temperature heating on meat flavor, but does not include the pyrogenic flavor development such as occurs at the surface of meats during broiling, frying, or roasting or in juices browning in the pan. Beef, lamb, pork, and chicken were investigated.

By a combination of operations, including pounding, squeezing in a hydraulic press, and leaching with water, the fiber of the meat tested was separated from the juice.

It was found that the flavor of *raw* meat resides mostly in the juice. It is apparently due to the sweetness and saltiness of actual blood.

The raw-meat fiber obtained was grayish white in color, had no detectable odor, and on chewing, no taste. There was a slight sensation of astringency in the mouth. Chewing the fibrous material was productive of no more flavor than the chewing of cellulose fibers, and salivation was not stimulated, thus indicating that enzymes are apparently not present in the saliva capable of releasing any taste-producing substances during chewing.

Cooking developed meaty flavor, apparently owing to chemical changes taking place in the fiber rather than in the juices. (Boiling the juice originally squeezed from the meat produced little odor and did not greatly increase the taste.) These chemical changes were presumably the "cracking" of amino acid units of the protein, particularly those of the fiber.

The most conspicuous flavor elements present are apparently released on chewing. After boiling the fiber for about 5 min., it developed some "meaty" flavor, not easily noticeable by smelling, but released slowly on chewing, and no amount of chewing made this flavor disappear, indicating its presence throughout the mass of the fiber. Boiling the fiber for 35 min. and letting it cool produced a distinct meaty flavor, which was identified as essentially an *odor* for no more than a trace of taste (sweetness) could be detected when the nostrils were held. When the nostrils were released, a flood of meaty flavor was noted in the mouth, throat, and nose.

All of the meats examined seemed to have a weak, fundamental, blood-like flavor when raw, on which was superimposed flavor distinctive of the species, food, and environment of the animal. The flavors developed on cooking were similar for the various meats, again modified by the factors of species, food, and environment, although these characteristics tended to be lost with prolonged cooking. The differences seemed to be more in quantity than in quality.

Influence of Various Levels of Thiamine Intake on Physiologic Response[1]

II. Urinary Excretion of Thiamine

KATE DAUM, W. W. TUTTLE, MARJORIE WILSON, and HELEN RHODES

Departments of Nutrition and Physiology, College of Medicine, State University of Iowa, Iowa City

URINARY excretion of thiamine was followed during an investigation in which alterations in certain physiologic functions were observed in subjects on diets of known thiamine content and findings will be reported here.

The subjects were young women attending the State University of Iowa who ate the special diets in one of the dining rooms in the University Hospital. The diets were carefully prepared under as standardized techniques as possible. Details as to the production of these diets have been given in this JOURNAL (1). The results of the physiologic tests will follow later in this series of papers.

EXPERIMENTAL DESIGN

The study consisted of three separate experiments, covering a two-year period. During the first year, methods and techniques for preparation of food, anallysis of urine, determination of thiamine content of foods, and measures of physiological changes were established and standardized. A preliminary experiment lasting nine months and using eight subjects served to check the methods selected. All subjects received the same diet containing an average of 100 mcg. thiamine per day and a capsule which contained riboflavin, niacin, and ascorbic acid. Two received, in addition, 1200 mcg. thiamine per day in the capsule. The capsules were identical in appearance, and the subjects did not know who received the thiamine supplement. Calories averaged 2200 and the protein 55 to 60 gm. daily. Caloric intake was adjusted so that there were only minor weight changes throughout the experimental periods.

The second experiment was preceded by a control or standardization period of forty-five days during which all subjects ate an adequate, weighed diet. This was followed by the actual experimental period, during which a basal low-thiamine diet was served to all subjects. This paper will deal only with the latter period. The daily dietary thiamine averaged 140 mcg. with 2500 calories and 60 gm. protein. Twelve healthy young women, none of whom were in the preliminary experiment the preceding year, were the subjects. All ate the same diet, and all received daily a capsule containing 1.5 mg. riboflavin, 10 mg. niacin, 75 mg. ascorbic acid, and 300 mg. calcium. Six subjects received an additional supplement of 1200 mcg. thiamine in the same capsule.

During the third experiment of nineteen weeks, all subjects (the same individuals as in the second experiment) ate a diet containing not more than 200 mcg. thiamine. Four subjects received no thiamine supplement in their capsules, three received a daily thiamine supplement to bring the total to 625 mcg., and four received a supplement to bring the total to 1000 mcg. thiamine daily. Again calories and protein were adequate so that the weight of all subjects remained constant, and all were in nitrogen equilibrium. The subjects on the low intake in the previous period received the highest level of intake in this period. Subjects *4* and *10* withdrew early in the experiment, one with an acute appendicitis; the second had a similar pain but no diagnosis was made.

Total urine collections were made by each subject three days per week throughout all of the experimental periods. The urine was collected in bottles containing glacial acetic acid and toluol and, if analysis could not be done at once, the specimens were refrigerated at 0°C. All urine samples were adjusted to a *p*H of 4.5 or less for storage.

Food Digests. An exact duplicate of all food served was placed in a 3-liter beaker covered with 0.1 N sulphuric acid and, when collections for each day were complete, was digested on an electric hot

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plate at low heat for 6 to 8 hr. It was then macerated in a Waring Blendor, made up to volume with 0.1 N sulphuric acid and stored at 0° C. for analysis. Aliquots of the digest were buffered with sodium acetate, incubated with 10 per cent clarase at 37°C. for 12 to 16 hr., and made up to volume, usually 100 cc. Twenty-five to 40 cc. were used for the thiochrome determination after centrifuging (2).

Analytical Methods. Nitrogen was determined on aliquots of all food mixtures and on all urine samples daily by the macro-Kjeldahl method. Creatinine was determined on all urine specimens by the Folin micro-chemical method. Thiamine was determined by the method of Hennessy and Cerecedo (2, 3) with modifications suggested by Mickelsen *et al.* (4) and Roderuck, Williams, and Macy (5). A Coleman 12A Model fluorometer was used to read fluorescence.

RESULTS AND DISCUSSION

The thiamine content of the 200-mcg. diet was quite constant from day to day, and the calculated (6, 7) values checked well with those from analysis. The 140-mcg. thiamine diet was more variable in thiamine and was definitely more monotonous and more difficult to make attractive and palatable. However, there were few complaints, and the diets were eaten with apparently as much relish and interest at the end as at the beginning of the study.

In Tables 1 and 2 the urinary excretion of the twelve subjects on the 140-mcg. thiamine diet as weekly averages is given. The six subjects (Table 1) receiving no thiamine supplement showed gradually decreasing outputs of thiamine, with the lowest excretions appearing in the fourth week. There was some slight increase in the fifth and sixth weeks. The subjects receiving the thiamine supplement (Table 2) showed a markedly increased excretion beginning the third week. No doubt this marked increase was delayed because supplementation did not begin until the second week. This increase continued throughout the period. There was considerable individual variation in the levels at the fifth and sixth weeks. Subjects *7* and *8* excreted much less than the others. There was much less individual variation in the excretions on the low level.

In Table 3 are given average monthly urinary excretions of the subjects on the 200-mcg. thiamine diet during nineteen weeks. Except for one subject, there was a decrease in excretion at the end of the second month. This decrease was evident in the fourth month and was still greater at the end of the period. The individual variations were slight. Elsom (8) reports an output of 21 and 32 mcg. in two subjects on a total intake of 204 mcg. each at the end of sixty-three and thirty-seven days respectively, with deficiency symptoms appearing in the second subject. These figures are similar to those shown by our subjects after a similar period.

Subject *9* developed pain and tenderness in the calves of her legs during the fourth month and was removed from the restricted diet soon thereafter. This condition persisted about two weeks after her diet was supplemented with synthetic thiamine. No subject developed anorexia. Electrocardiograph

TABLE 1

Average daily intake and urinary excretion of thiamine of subjects eating not more than 140 mcg. per day

PERIOD	THIAMINE	
	Average Intake	Average Excretion
	Subject 1	
	mcg./day	*mcg./day*
1st week	135	13
2nd week	140	—
3rd week	134	25
4th week	133	15
5th week	143	19
6th week	130	15
	Subject 2	
1st week	133	29
2nd week	129	15
3rd week	134	21
4th week	125	14
5th week	140	15
6th week	140	21
	Subject 3	
1st week	140	19
2nd week	135	15
3rd week	131	13
4th week	140	9
5th week	138	—
6th week	140	19
	Subject 4	
1st week	138	22
2nd week	135	18
3rd week	133	17
4th week	130	11
5th week	136	15
6th week	130	15
	Subject 5	
1st week	133	16
2nd week	136	18
3rd week	133	—
4th week	133	12
5th week	130	17
6th week	129	19
	Subject 6	
1st week	138	17
2nd week	140	17
3rd week	122	18
4th week	136	9
5th week	139	13
6th week	137	18

tests were made on all subjects at the beginning and end of all experimental periods, and no changes from normal were recorded. This was true of Subject *9*.

In Table 4 are given the urinary excretions of the subjects receiving 625 mcg. thiamine, 200 of which were from the diet. Decreases in thiamine excretion were evident as the experiment progressed, with the lowest level being reached at the third month. However, the output at the end of the nineteen weeks was slightly greater than at the beginning.

Keys (9, 10) Elsom (8), and Oldham (11), as summarized in Table 5, report excretions at similar levels of intakes. The thiamine excretion in subjects of Elsom and Oldham were similar to these reported here. Keys reports much lower excretions, but his subjects were young men on higher calories and, therefore, at a very low calorie-thiamine ratio.

In Table 6 are given the urinary excretions of the subjects receiving approximately 1000 mcg. thiamine, 200 of which were contained in the diet. The excretions gradually decreased during the first two months, then increased until at the end of the nineteen weeks the levels were greater than the initial levels. There was considerable variation in the three subjects, although each followed an individual pattern. Subject *3* was the lowest throughout the experiment and excreted at the end only half as much as Subject *2*. Individual variations were much greater than at the lowest level of intake.

TABLE 2

Average daily intake and urinary excretion of thiamine of subjects eating 140 mcg. thiamine plus 1200 mcg. synthetic thiamine

PERIOD	THIAMINE	
	Average Intake	Average Excretion
Subject 7		
	mcg./day	*mcg./day*
1st week	131	12
2nd week	1345	35
3rd week	1334	97
4th week	1330	134
5th week	1336	146
6th week	1329	160
Subject 8		
1st week	134	17
2nd week	1333	22
3rd week	1328	87
4th week	1330	172
5th week	1340	180
6th week	1330	252
Subject 9		
1st week	141	21
2nd week	1338	32
3rd week	1334	44
4th week	1327	270
5th week	1343	319
6th week	1333	316
Subject 10		
1st week	138	—
2nd week	1345	43
3rd week	1334	78
4th week	1324	164
5th week	1334	235
6th week	1333	342
Subject 11		
1st week	133	27
2nd week	1346	50
3rd week	1334	78
4th week	1327	277
5th week	1342	386
6th week	1333	396
Subject 12		
1st week	138	—
2nd week	1339	—
3rd week	1335	37
4th week	1342	202
5th week	1330	196
6th week	1339	—

TABLE 3

Average daily intake and urinary excretion of thiamine of subjects eating not more than 200 mcg. dietary thiamine

PERIOD	THIAMINE	
	Average Intake	Average Excretion
Subject 7		
	mcg./day	*mcg./day*
1st month	192	26
2nd month	171	28
3rd month	190	19
4th month	171	9
5th month	185	9
Subject 8		
1st month	188	37
2nd month	191	13
3rd month	196	16
4th month	179	10
5th month	186	7
Subject 9		
1st month	190	27
2nd month	178	18
3rd month	192	14
4th month	179	11
5th month		
Subject 11		
1st month	182	39
2nd month	167	12
3rd month	191	15
4th month	181	9
5th month	182	7

There are numerous reports of urinary excretion in subjects receiving an intake of 1000 mcg. thiamine or more. A few such values are listed in Table 5. These levels vary greatly as reported by the various authors. Time, total calories, and methods of analyses probably account for these differences.

Excretion of thiamine was also scrutinized as to percentage of intake. The subjects (Table 3) on the 200-mcg. thiamine intake excreted at the end of the nineteen weeks, 4.0, 3.6, and 3.6 per cent of the intake. Subject *9* was excreting 6 per cent at the end of the fourth month when given a supplement. The subjects on the 625-mcg. thiamine intake excreted 3.7, 3.9, and 3.5 per cent at the lowest level and 5.7, 7.0, and 7.0 per cent at the end of the experiment. On the 1000-mcg. thiamine level the percentages were 2.6, 3.4, and 3.9 per cent at the lowest level and 5.5, 6.7, and 9.0 per cent at the end.

The lowest level of excretion for all subjects expressed in this way was similar, although the time at which this level appeared varied from the fifth month on the 200-mcg. level to the third month on the 625-mcg. level and to the second month on the highest level. It must be remembered that all subjects at the 1000-mcg. thiamine level and Subjects *5* and *6* at the 625-mcg. level had been on the 140-mcg. level of thiamine intake during the second experiment. Hence, some of the above results may be altered because of a residual partial depletion of tissue. These percentages were somewhat lower than suggested as indicative of adequate thiamine.

The period of adjustment to a change in thiamine intakes varied with the restriction, and Keys (9) suggests ten days to six weeks as essential periods of observation. In this experiment subjects on the 200-mcg. thiamine intake were apparently not stabilized at the end of nineteen weeks. The change from a decreasing to an increasing excretion (fourth month) might be interpreted as adjustment in the group on the 625-mcg. level. The subjects on the 1000-mcg. level, all of whom received 140 mcg. thiamine daily in the previous experiment, excreted the same percentage during the fourth and fifth months. Adjustment might be assumed at this time for this group, although none reached the 100-mcg. level of excretion suggested by Williams, Mason, and Wilder (14) as normal.

In 1944, Melnick (15) reviewed the studies dealing with human requirements to date and concluded that the normal requirement for the sedentary adult was approximately 0.35 mg. per 1000 calories. In 1946 Alexander and Landwehr (16) concluded from their studies with thiamine and pyramine or PAYF factor, that the minimal requirement for a normal male was 0.44 mg. per 1000 calories.

Oldham (11), in her study using young women, concluded that intakes of 0.14, 0.20, and 0.36 mg. per 1000 calories were inadequate on the basis of low urinary excretions and test load returns. She suggests the intake should not be less than a total of 1 mg. or 20 mcg. per kilogram body weight. Elsom (8) suggested 350 mcg.; Holt (17), 230 to 330 mcg.; Hathaway (12), 400 mcg. per 1000 calories; and Young (18), as a result of a dietary survey made on 385 individuals, concluded that intakes of 190 to

TABLE 4

Average daily intake and urinary excretion of thiamine of subjects receiving not more than 625 mcg. thiamine

PERIOD	THIAMINE	
	Average Intake	Average Excretion
Subject 5		
	mcg./day	*mcg./day*
1st month	603	34
2nd month	613	27
3rd month	606	21
4th month	607	28
5th month	624	36
Subject 6		
1st month	603	34
2nd month	612	28
3rd month	613	25
4th month	604	30
5th month	622	44
Subject 12		
1st month	607	41
2nd month	617	25
3rd month	620	22
4th month	614	24
5th month	631	50

TABLE 5

Intake and urinary output of thiamine as reported by other investigators

AUTHOR	SUBJECTS	TOTAL AVERAGE DAILY THIAMINE		THIAMINE INTAKE	LENGTH OF PERIOD
		Intake	Excretion		
		mcg.	*mcg.*	*mcg./1000 calories*	*days*
Elsom (8)	women	574	42.0	280	120
	women	651	56.0	350	36
Keys (9)	men	580	5.8	180	161
	men	630	17.6	190	86
	men	700	2.1	210	116
Keys (10)	men	1000	106	330	14
	men	1000	92	330	70
Oldham (11)	women	640	65	360	40
	women	974	107	540	240
Hathaway (12)	women	1000	113	370–450	70
	women	1000	116	370–450	70
	women	1000	147	370–450	70
Roderuck (13)	women	1180	331	400	161
	women	1200	326	400	148

TABLE 6

Average daily intake and urinary excretion of thiamine of subjects receiving not more than 1000 mcg. thiamine

PERIOD	THIAMINE	
	Average intake	Average excretion
Subject 1		
	mcg./day	*mcg./day*
1st month	987	53
2nd month	968	39
3rd month	987	40
4th month	981	54
5th month	980	68
Subject 2		
1st month	990	53
2nd month	984	34
3rd month	981	49
4th month	985	88
5th month	999	90
Subject 3		
1st month	986	35
2nd month	986	27
3rd month	993	41
4th month	984	41
5th month	992	56

220 mcg. per 1000 calories were adequate. Many of these studies, as pointed out by Keys, were of too short duration. Nevertheless, the majority of authors agree on levels between 310 to 350 mcg. per 1000 calories as an adequate allowance.

SUMMARY

A group of young women ingested diets containing levels of thiamine varying from 140 to 1340 mcg. per day. On the basis of the analysis of urine for thiamine, the following conclusions are drawn:

(a) When the level of ingested thiamine was not more than 140 mcg. per day, the average amount excreted daily was consistently less than 20 mcg. over a period of forty-five days.

(b) At the 200-mcg. level of ingested thiamine per day, there was a progressively diminishing average daily excretion of thiamine for nineteen weeks.

(c) With a daily ingestion of 625 mcg. thiamine, there was a gradual decrease in the average daily amount of thiamine excreted during the first three months followed by a gradual, but small increase over the subsequent two-month period.

(d) When the daily thiamine ingestion was 1340 mcg., the average daily amount excreted progressively increased over a period of forty-five days.

(e) Analysis of urine of subjects who were shifted from a daily ingestion of 140 mcg. to 1000 mcg. thiamine did not reflect the increased intake until about the third month.

(f) Anorexia or difficulty in eating the diets was not experienced by any of the subjects on any level of thiamine included in the experiment.

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Nutrition in Paraplegia:

A Preliminary Report[1]

CHARLES EDWARD THOMPSON, M.D., F.A.C.P., and A. V. ISHERWOOD, M.D.

Paraplegia Service, Veterans Administration Medical Teaching Group, Kennedy Hospital, Memphis, Tennessee

AS OUR knowledge advances in the present study of injuries of the spinal cord, it becomes increasingly evident that nutrition of the patient with this injury is of primary importance. In order to understand the metabolic disturbance that accompanies spinal cord injury, it is necessary first to differentiate the various phases of this injury into three parts: the immediate, or spinal shock phase; the intermediate phase; and the chronic spinal cord injury phase.

SPINAL SHOCK PHASE

During the first phase of spinal shock, there is an abrupt change in the whole metabolism of the body, due in part to the fact that the patient, instead of being an ambulatory person, becomes recumbent and restricted by devices which limit the motions of his body. Superimposed on this usually is an infection of the urinary tract and the usual changes that accompany the atrophy of tissue. The patient is transformed from a person with normal metabolic mechanisms to that of a paralyzed patient with difficulties in emptying his genito-urinary and gastrointestinal tracts, and with altered requirements for food and fluid. Consequently, the problem of feeding this patient is immediately changed as to quantity and quality of food.

Various studies, such as those of Keeton and coworkers (1), on the metabolic requirements of patients have shown that recumbency and restriction of physical activity cause a generalized disturbance in the metabolism of the body. This is evident from the study of protein and amino acid requirements during recumbency, surgery, and infection. If one applies these principles to the study of spinal cord injuries, it may be readily anticipated that protein requirements will be increased, and clinical observations at this center have borne out the fact that negative nitrogen balance occurs early after injury. Complete studies of nitrogen loss in the early phase of spinal cord injury are still in progress.

Weight studies at this hospital have shown uniform loss of weight during the first two months following spinal cord injury. This weight loss varies from 20 to 40 lb. and has been as high as 60 lb. Two patients showed a weight loss of over 100 lb. in the first year of injury.

Other disturbances in metabolism have been noted in patients with spinal cord injury, such as a loss of calcium. Also, clinical observations have shown a marked disturbance of metabolism in the liver, such as the early presence of gynecomastia and liver disease, and laboratory tests have indicated abnormal liver function. These studies will be reported later.

INTERMEDIATE PHASE

During the intermediate phase of spinal cord injury, the patient is removed from the recumbent to the upright position and attempts are made to make him ambulatory.

For a variety of reasons, these patients frequently show poor caloric intake as compared to normal intake. In addition, if hypoproteinemia has been allowed to occur in the first stage, a normocytic, normochromic type of anemia usually develops.

Certain vitamin deficiencies also occur frequently. Cheilosis and red tongue, associated with B-complex deficiency, have been repeatedly observed clinically. The ascorbic acid level in the plasma of twenty-five patients was also low. However, this did not compare to levels seen in clinical scurvy. These vitamin deficiencies can be promptly corrected by adequate dietary care.

CHRONIC PHASE

The patient in the chronic phase of spinal cord injury is in a wheel chair most of the time. He is doing some actual physical work, such as walking

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with crutches, as well as undergoing various types of rehabilitation efforts. He is still subject to recurrent infections and the intercurrent diseases that usually accompany this disability, all of which augment his requirement for nutrients.

A study of protein metabolism in a group of twenty patients in the chronic stage of paraplegia showed that patients, with an intake of less than 60 gm. of protein per day, were uniformly in negative nitrogen balance and that 60 gm. or more of protein per day were required to get these patients into positive nitrogen balance and subsequently into equilibrium. When the average protein intake was from 90 to 150 gm. per day, these patients obtained nitrogen equilibrium more rapidly (Table 1).

TABLE 1

Eighteen-day nutrition study of twenty patients in chronic phase of paraplegia

AVERAGE DAILY PROTEIN INTAKE	NUMBER OF PATIENTS	NUMBER OF PATIENTS IN NEGATIVE NITROGEN BALANCE AT BEGINNING OF STUDY	NUMBER OF PATIENTS IN POSITIVE NITROGEN BALANCE AT END OF STUDY	NUMBER OF PATIENTS IN NEGATIVE NITROGEN BALANCE AT END OF STUDY	NUMBER OF PATIENTS SHOWING WEIGHT GAIN	NUMBER OF PATIENTS SHOWING WEIGHT LOSS	NUMBER OF PATIENTS SHOWING NO WEIGHT CHANGE
Greater than 60 gm.	14	9	13	1*	12	1*	1
Less than 60 gm.	6	6	0	6	0	6	0

* Patient's average protein intake was 68 gm. per day.

Experience at this center has shown that patients whose rehabilitation is the most rapid are those in an optimum state of nutrition. In this state the patient may be from 10 to 15 per cent above his normal weight. It is important to maintain effective nutrition in the chronic phase in order to maintain the tissues in as resistant a state as possible.

PARAPLEGIC DECUBITUS ULCER

The nutritional factor as an etiological agent in the production of decubitus ulcers in patients other than those having spinal cord injury has been shown by Mulholland *et al.* (2). These workers found that concentrations of plasma protein in patients with decubitus ulcer were below normal and that negative nitrogen balance occurred. Similar results occur in paraplegic patients having decubitus ulcers. The use of Mulholland's theory of high-protein feedings with our patients has resulted in a marked improvement in this frequent complication of spinal cord injury. Unfortunately, the patient continues to lose large amounts of protein by exudation from these ulcers. Other workers (3) have indicated the extent of this loss. Unless stopped, this loss will increase the hypoproteinemia. As a result, until the patient is restored to nitrogen equilibrium, the ulcer will not heal. Conversely, we have found that when nitrogen equilibrium has been maintained, decubitus ulcers have shown a remarkable tendency to heal. Furthermore, the hypoproteinemia and anemia improved. This was accomplished by feeding large amounts of protein. When the protein was adequate, healing of ulcers occurred by granulation and epithelization. It was also found that surgical repair was likely to fail unless the patient was in nitrogen equilibrium. Consequently, all patients now subjected to plastic repair have been spot-checked by pre-operative nitrogen balance studies. In a short period of six months following the establishment of this procedure or routine, the percentage of decubitus ulcers dropped from 89.1 per cent with 1.7 ulcers per patients, to 30 per cent with 1.6 ulcers per patient. The improvement was accomplished even though many new patients with ulcers were admitted during this period. Because of this experience, decubitus ulcers are now classified into two types at this hospital: (a) ulcers that will heal medically by use of dietary measures and proper surgical dressings and (b) ulcers that need to have plastic surgical repair.

ORAL AND INTRAVENOUS FEEDINGS

The actual feeding of patients during the spinal shock, or early phase of paraplegia, must of necessity vary considerably. It may be necessary for a short time to give intravenous feedings of protein hydrolysate or to use whole blood transfusions, but the patient should be placed on oral feedings as early as possible. When food can be taken by mouth, this is the best route of administration, for experience has shown a rapid clinical improvement following oral feedings. The patient should have at least 1.5 gm. protein per kilogram of body weight per day, with carbohydrates in the usual proportions. In order to maintain a high-protein level, it has been found necessary to give these patients supplementary feedings of a high-protein milk formula which contains 450 calories per 8 oz.[2]

However, the effectiveness of oral feeding in the early stage depends largely on the personal supervision on the part of the dietitian. Continual conferences between the doctor, dietitian, and patient have proved essential in developing a cooperative and receptive attitude toward eating on the part of the patient—an attitude which is necessary if the patient is to obtain adequate food.

In the initial stage the minimum daily caloric figure should range between 3000 and 4500. During

[2] This formula is made up in five-glass lots, with the following ingredients: 500 cc. skim milk; 200 gm. powdered skim milk; 100 gm. Karo corn sirup; 2 eggs; 100 gm. lactose; 240 cc. milk; and 100 gm. chocolate sirup. This formula provides 2243 calories, 386 gm. carbohydrate, 112 gm. protein, and 30 gm. fat.

the intermediate and chronic phases of paraplegia, the nutritive requirements may be less—from 2800 to 3000 calories per day, with from 1 to 1.5 gm. protein per kilogram as a minimum. A well balanced diet, the education of the patient regarding the proper and adequate intake of food, and constant vigilance by the doctor and the dietitian will accomplish and maintain the proper state of nutrition of the paraplegic patient.

Although fluid balance is not discussed in this paper, it may be stated that a minimum of 4000 cc. of water per day is essential to the well being of the paraplegic patient.

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WHO and FAO Joint Plan for More Food Through Better Health

Today, the world is hungrier than it would be if health standards were higher in a number of major agricultural areas scattered across the globe. In these regions, unsatisfactory health conditions among agricultural workers result in lowered food production, while on the other hand inadequate food supplies prevent efforts to raise the level of health.

For instance, in some parts of Siam, malaria cuts food production on a double-time basis. Rice farmers face one season of malaria just when they are busiest tilling the soil in early summer. If enough are spared to get the planting done, they may still be hit by the second round of malaria, which comes just at harvest time.

What can be done about this vicious circle? Experts in the World Health Organization and the Food and Agriculture Organization are planning a comprehensive program expected to yield immediate as well as long-range benefit for local populations and for the rest of the world, too. WHO and FAO hope to prove that health conditions and resulting low agricultural output can be improved through proper methods in the combined use of agricultural machinery, adequate draft power, correct fertilizers, pesticides, and so on. They believe that action to improve health in backward areas and at the same time to raise the overall level of food production is entirely feasible.

For example, such a program, using DDT as a weapon, might be applied to malaria-ridden areas such as Siam. With DDT, malaria may either be wiped out entirely or at least controlled beyond the point of being a real danger. In the past many an irrigation project designed to increase food production has failed or been abandoned because with it came swarms of malaria-bearing mosquitoes. With DDT, this need not happen again.

The plan of action of WHO and FAO would be as follows. First, surveys would be made by teams of agricultural and health specialists to decide on two or three areas in the world which would be well suited as "proving grounds." Agreements would then be made with the governments concerned so that the efforts of WHO and FAO would be followed up by vigorous national action. Next, large-scale demonstrations involving a combination of disease control and agricultural development would be carried out in these areas. This combination, under the supervision of WHO and FAO experts, would be supported by mobilization of local manpower, arrangements for training local personnel, and stimulation of necessary investment.

With such a program, WHO and FAO believe that not only would there be a marked increase in actual production of food both per man and per acre, thus contributing directly to the alleviation of the world food scarcity, but there would also be an almost immediate moral effect among peoples who have always believed they were slaves of their environment not its masters.

The estimated cost of such a project has been set at about 20 cents per acre each year for five years, and it is felt that it should be applied to at least 10 million acres of potentially rich agricultural land now being worked by disease-ridden people. This would mean a total expenditure of international funds of some $2 million annually, or $10 million for the five-year period. Whether these plans will materialize depends on whether sources can be found which will be willing and able to contribute the required $2 million a year.—*From WHO Newsletter, October, 1948.*

Amino Acid Content of Chicken[1]

RICARDO MILLARES[2] and C. R. FELLERS

Department of Food Technology, University of Massachusetts, Amherst

CHICKEN meat has long been an important food item. Along with flesh foods of animal and marine origin, it is considered a valuable source of protein. According to recent figures of the Department of Agriculture (1), consumption of poultry has shown a steady increase, with a present estimated per capita consumption of 23.3 lb. annually.

While numerous studies have been made on the vitamin content of chicken, little attention has been given to its content of the so-called "essential" amino acids. The recent application of microbiologic methods to the assay of amino acids has provided a more precise means of measurement and made possible a better definition of these substances.

The present investigation was undertaken to determine the proportions of the indispensable amino acids in the protein of chicken meat, and to compare the growth-promoting value of chicken meat with that of other common sources of food protein.

REVIEW OF LITERATURE

Harshaw (2) investigated the composition of poultry as affected by age and sex and found that when birds are fed adequate diets, no notable differences in proximate composition were evident. If the birds were subjected to a fattening period for two weeks before killing, however, a large increase in the water content of the flesh resulted. In later studies, Harshaw and Rector (3) and Harshaw (4) reported the chemical composition of chicken and turkey meat as shown in Table 1. With birds between sixteen and thirty-two weeks of age, the water, protein, and ash content of the edible portions tends to remain constant, except when there is a large increase in fat. Harshaw (4) further stated that chicken meat is a good source of phosphorus and iron, but a poor source of calcium.

Few data are available on the quality and nutritive value of chicken meat protein. Hepburn and coworkers (5), in feeding experiments with young albino rats, found chicken meat to be less efficient than casein as a source of dietary protein. With diets in which the source of protein was chicken meat at a level of 7.5 per cent and which were fed over a fifty-seven-day period, the average increase in body weight was 141.3 per cent of the original weight. In comparison, rats fed with casein as a source of protein under similar conditions showed an average increase in weight of 176.2 per cent. No references could be found comparing chicken meat with proteins of animal or marine origin.

TABLE 1

Chemical composition of chicken meat as reported by Harshaw and Rector (3) and Harshaw (4)

KIND OF MEAT	PROTEIN	FAT	WATER	ASH
	%	%	%	%
Light meat	23.5	1.12	74.6	1.1
Dark meat	20.1	4.39	74.5	1.0

Block and Bolling (6) compiled values for the amino acids in beef, pork, lamb, and veal muscle, as well as for the visceral organs of the same animals. Determinations were made by chemical methods. These workers also gave values for arginine, histidine, lysine, tryptophan, phenylalanine, methionine, threonine, and valine in the muscles of chicken.

Determinations on the amino acid content of chicken meat protein, using chemical methods, were made by Gurevich (7). In an investigation of the relationship between the tryptophan and tyrosine content of chicken meat and the age and sex of the birds, this worker determined the amounts of these amino acids in the muscle proteins. Munks *et al.* (8), in a study of the amino acid requirements of chickens for body maintenance and egg production, determined nine amino acids of white and dark meat.

Recent work on meats has also included determinations of amino acids by microbiologic methods. Schweigert *et al.* (9) developed a procedure for the determination of valine and leucine in fresh animal tissues by which the amino acids could be determined in the presence of fats and carbohydrates. Values were reported for beef, pork, lamb, and veal.

Greene and Black (10) determined the tryptophan content of muscle proteins of beef, pork, lamb, and

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[2] Present address, Armour Research Foundation, Mexico D. F., Mexico.

veal. Greenhut *et al.* (11, 12) similarly reported values for tryptophan and threonine in animal muscle protein. Riesen *et al.* (13), in determinations of the methionine content of proteins and foodstuffs, obtained values for the common meats.

No report has been found in the literature of determinations of amino acids in chicken meat by microbiologic methods. Only eight indispensable amino acids and two non-indispensable amino acids have been determined by chemical methods.

EXPERIMENTAL PROCEDURE

Preparation of Samples

For experimental studies, twenty-eight White Rock chickens (fowls) were obtained from the Department of Poultry Husbandry of the University of Massachusetts. These birds had been raised under similar conditions and had been fed with a complete practical diet to assure, insofar as possible, similar composition of the muscle flesh. The birds were starved for 24 hr. and then killed by piercing the brain and severing the jugular vein. After complete bleeding, the birds were defeathered with a mechanical picker and immediately dressed, washed, and dried with paper towels.

For samples, the chickens were boned, and the meat was separated into two parts, one the light meat from the breast and wing muscle, and the other the dark meat from the muscles of the legs and thighs. The livers and the gizzards were also saved for analysis. All visible fat was removed from the muscles, and the different portions were passed several times through a grinder with holes 0.5 mm. in diameter. After thorough mixing to assure homogeneity, the various samples were packed in glass jars which were hermetically sealed. Since freezing has no detectable effect on the amino acids in tissues, samples were frozen and stored at −18°C. until used.

Amino Acid Analyses

Samples used for the estimation of amino acid content of muscle meat and visceral organs were first analyzed for protein, moisture, and fat. Percentages of protein were calculated from the nitrogen contents of the individual samples, determined by the Kjeldahl method, using the accepted factor of 6.25 (N × 6.25). Moisture determinations were made according to the method of the Association of Official Agricultural Chemists (14) for meats, the samples being dried at 95° to 100°C. under a vacuum of 28 in. for approximately 5 hr. Fat content was likewise determined according to the method for meats of the same Association by refluxing the dry samples with water-free ether for 16 hr. in a Soxhlet apparatus.

Procedures and organisms employed in amino acid determinations were selected on the basis of previous experience, and assays were made on the individual portions of light meat, dark meat, liver, and gizzards to include the ten so-called "indispensable" amino acids. A minimum of two separate determinations was employed in the assay of each amino acid, and all determinations were made in duplicate.

Liberation of the amino acids was effected by acid hydrolysis except in determinations of tryptophan. Schweigert and co-workers (9), in studies on animal tissues, observed maximum liberation of amino acids when samples were hydrolyzed with 2 N hydrochloric acid at 121°C. for 5 to 10 hr. Similar results were found in the present study, maximum liberation occurring in 5 to 6 hr. under the same conditions. Dunn (15) indicated no appreciable destruction of nine amino acids by refluxing with hydrochloric acid for 24 hr., although some of the other amino acids underwent destruction up to 100 per cent. Methionine and threonine showed up to 20 per cent destruction in recovery tests; cystine, 60 per cent; tyrosine, 90 per cent; and tryptophan, 100 per cent when hydrolyzed in this manner. Enzymatic hydrolysis has been recommended for determinations of the latter three amino acids to minimize this degradation. The procedure of Greenhut *et al.* (12), employing pancreatin and hog intestinal mucosa with shaking for 24 hr., was employed in the present investigation to determine tryptophan.

For all determinations except those for tryptophan, 1-gm. samples were weighed into suitable flasks and hydrolyzed under 15 lb. steam pressure (121°C.) with 25 cc. of 2 N hydrochloric acid. After hydrolysis, samples were adjusted to 100 cc. volume with distilled water and filtered. Aliquots of 10 cc. of the filtered solutions were then taken, adjusted to *p*H 6.8 by careful addition of sodium hydroxide solution, and diluted to 100 cc. volume. From this last dilution, aliquots of 1, 2, and 3 cc. were used.

For enzymatic hydrolysis, samples similar in size to those used for acid hydrolysis were suspended in 25 cc. of distilled water together with 10 cc. of a water suspension equivalent to 50 mg. of U.S.P. pancreatin[3] and 25 mg. of hog intestinal mucosa[4] in 100-cc. volumetric flasks, according to the procedure of Greenhut *et al.* (11, 12). After adjustment of the *p*H to 8.2 with sodium hydroxide, samples were covered with toluene and shaken in an incubator at 37°C. for 24 hr. After incubation, the samples were cooled to room temperature, brought to a volume of 100 cc., and filtered. Aliquots of 10 cc. of the filtered solutions were taken, adjusted to *p*H 6.8, and diluted to 100-cc. volume. Aliquots of 1, 2, and 3 cc. of these dilutions were used in determinations.

Assays for leucine, isoleucine, phenylalanine, valine, methionine, and trytophan were conducted using *Lactobacillus arabinosus 17–5* as the test organism, according to the general procedure and method of Schweigert *et al.* (9) as modified by Reisen

[3] Merck and Company, Rahway, New Jersey.
[4] Supplied by the Wilson Laboratories, Chicago.

(13). In the present study, certain additional modifications were made in the composition of the media, which were found to produce more reliable standard curves for all of the amino acids tested with the same microorganism. The essential differences were the use of *dl*-aspartic acid instead of asparagine and the use of the original level of methionine recommended by Schweigert *et al.* (9). Since *dl*-leucine is frequently contaminated with *dl*-isoleucine as reported by Hegsted and Wardwell (16), *l*-leucine was used in the medium for the determination of isoleucine. In the vitamin solution, only pyridoxamine hydrochloride was used, and pyridoxine hydrochloride, choline chloride, and *i*-inositol were omitted from the medium as not being absolutely necessary for proper response of the microorganisms. Stock solutions of the purines and pyrimidines, Salts A and Salts B, and all of the B vitamins were prepared and stored under toluene in the refrigerator. Aliquots of these solutions were used in preparing the media. The appropriate amino acid was omitted from the basal medium in each determination.

Standard curves were established from solutions of 100 mg. of either the *l*-isomer or *dl*-isomer of the particular amino acid[5] made up to 100 cc. with distilled water. Aliquots of these solutions were taken to prepare solutions containing 10 or 20 mcg. of the amino acid per cubic centimeter, and by ranging amounts of these solutions from 0 to 0.5 cc. fractions, ranges of from 0 to 50 or 0 to 100 mcg. of the amino acid were obtained as desired for the standard curves. All values obtained from these curves were calculated on the basis of 100 per cent activity for the *l*-isomers, and 0 per cent activity for the *d*-isomers. The *dl*-amino acids were considered as having an activity of 50 per cent as reported by Stokes and Gunness (17) and others.

Histidine, arginine, and threonine determinations were conducted using *Streptococcus faecalis R* for determination of growth response. The basal medium was that reported by Riesen (13) for determination of methionine with this microorganism, except that pyridoxine, choline chloride, and *i*-inositol were omitted as not being indispensable for proper growth of the microorganism. The technique and general procedures were those previously cited. Standard curves were established from solutions of *dl*-threonine, *l*-arginine monohydrochloride, and *l*-histidine monohydrochloride.

Lysine was assayed using *Leuconostoc mesenteroides P-60* according to the general technique of Dunn and co-workers (18, 19) and employing the basal medium modified by Riesen (13) with the same omissions noted previously in the medium for *Streptococcus faecalis R*. General procedures were those previously cited. Standard curves were established from a standard solution of *l*-lysine monohydrochloride from which aliquots were taken as previously.

[5] Merck and Company, Rahway, New Jersey.

Stab stock cultures of the test organisms, obtained from the American Type Culture Collection, were carried in a medium of the following composition: 1 per cent glucose, 1.5 per cent agar, and 1 per cent Bacto yeast extract. The cultures were stored at 5°C. and subcultured every ten days. Inocula, as required, were prepared by transfer of the microorganisms to previously prepared tubes containing 10 cc. of the appropriate basal medium. After incubation for 24 hr. at 37°C., the cells were centrifuged and the supernatant liquid decanted. Cells were resuspended once in 10 cc. of sterile 0.85 per cent saline to wash out residual medium, recentrifuged, and once again suspended in 10 cc. of sterile saline. One drop of this suspension was used as inoculum for each tube.

Animal Feeding Tests

Studies on the growth-promoting value of chicken meat protein and a comparison of chicken meat protein with beef meat and fish flesh proteins were carried out using the paired feeding technique of Mitchell and Beadles (20). Three lots of weanling rats of the same sex and approximately the same weight, with litter mates equally distributed with different lots, were placed on test diets for a period of six weeks. Rats were housed in individual cages, and weighed weekly. Food consumption was measured and recorded daily.

The composition of the diets is given in Table 2. The diets were made up to contain 8 per cent protein (N × 6.25) and adjusted to the same fat level with corn oil. Starch was used as the source of carbohydrate, and Salt Mixture No. 2 of the U.S.P. XII was the source of minerals. The vitamin supplement was added in the form of synthetic vitamins. The rats were fed daily, and the amounts of food were so adjusted as to provide the same total intake for each group at the end of the experimental period.

RESULTS AND DISCUSSION

In Table 3 are shown the results of the determinations of the muscle meat and visceral organs of

TABLE 2

*Composition of test diets**

LOT NUMBER	PROTEIN SOURCE† (8 per cent level)	STARCH	SALT MIXTURE	CORN OIL	COD-LIVER OIL	AGAR	YEAST EXTRACT	LIVER EXTRACT
	gm./kg.	*gm./kg.*	*gm./kg.*	*gm./kg.*	*gm./kg.*	*gm./kg.*	*gm./kg.*	*gm./kg.*
1 (beef)	88	724	30	89	20	10	20	20
2 (chicken)	106	700	30	98	20	10	20	20
3 (fish)	97	713	30	93	20	10	20	20

* Each diet contained the following vitamin mixture per kilogram: thiamine, 1 mg.; riboflavin, 2 mg.; pyridoxine, 3 mg.; choline, 200 mg.; α-tocopherol, 50 mg.; and calcium pantothenate, 10 mg.

† Dried beef, chicken, and fish were used as sources of protein.

chicken for protein, moisture, and fat. The values for protein correspond closely to those found in the literature; values for fat were somewhat higher.

Results of the microbiologic determinations are summarized in Table 4, as percentages of the protein content of individual portions. All of the ten indispensable amino acids were found in chicken meat in amounts constituting 45.5 per cent of the total composite protein content. Among the individual portions, the livers were found to contain the greatest percentage of these amino acids, while gizzards contained the lowest percentage. Lysine and leucine were found to be the most abundant in quantity of the ten amino acids in all the portions, while tryptophan was present in least amounts. The other amino acids followed the same general pattern of values, indicating comparable relative amounts in the protein of the various edible portions of chicken.

Interpretation of these results on the fresh weight basis reveals that the light meat of chicken, possessing the highest protein content, likewise possesses somewhat greater amounts of the individual amino acids. Thus light meat and livers contained closely paralleling quantities of these amino acids.

Results of the growth-promoting experiment with animals are given in Tables 5 and 6. Statistical analysis of the data was made according to the methods of Snedecor (21).

On the basis of average weight gain of the rats, chicken meat protein, fish flesh protein, and beef meat protein showed similar values as shown in Table 5. The statistical analysis in Table 6 shows that the t values for comparison of the diets with one another were very much lower than the derived value for the experimental conditions, indicating that there was no significant difference in the growth-promoting value of the proteins.

Efficiencies of the proteins in the diets, measured by average weight gain per gram of protein consumed as listed in Table 5, were likewise not statistically different. Statistical analysis of these data again showed t values very much smaller than the derived value for the conditions of the study and indicated no significant difference in the efficiencies of chicken, fish, and beef meat protein under conditions of this experiment.

Comparison of values for the amino acids obtained in the present investigation with values available in the literature from chemical analyses reveals good correlation in regard to the general distribution of the amino acids in chicken meat. In studies by chemical methods of the amino acid content of animal tissue proteins, Beach *et al.* (22) included analyses of both the light and dark meats of chicken. Values for phenylalanine, methionine, threonine, arginine, and lysine obtained in the present investigation were somewhat lower than values reported by these authors, while values for histidine were somewhat higher. Values for tryptophan were in very close agreement. Variations were of such magnitude, however, as to be readily attributable to differences inherent in the analytical methods.

Comparison of values for the amino acids with values in the literature for the same amino acids in other meats indicates that chicken meat compares favorably with these other protein foods in content of the "essential" amino acids. On the basis of present estimated requirements, chicken meat may be considered a rich dietary source of these nutrients.

TABLE 3

Protein, moisture, and fat content of chicken meat and visceral organs

KIND OF MEAT	PROTEIN (N × 6.25)	FAT	MOISTURE
	%	%	%
Light meat	23.3	5.6	70.6
Dark meat	18.4	11.4	69.3
Liver	18.9	8.0	70.9
Gizzards	19.8	5.3	75.1

SUMMARY AND CONCLUSIONS

An investigation was undertaken to determine the proportions of the indispensable amino acids in the protein of chicken meat and to compare chicken meat with other common sources of food protein.

Analyses by microbiologic methods indicated that chicken meat is an excellent source of the indispensable amino acids, and that chicken meat is equivalent to beef, pork, lamb, and veal meats on the basis of content of these amino acids.

TABLE 4

*Content of indispensable amino acids in chicken meat and visceral organs as per cent of crude protein**

KIND OF MEAT	PROTEIN (N × 6.25)	AMINO ACIDS										
		Leucine	Isoleucine	Valine	Phenylalanine	Methionine	Tryptophan	Threonine	Histidine	Arginine	Lysine	Total
Light meat	23.30	6.95	5.32	4.72	3.78	2.14	1.20	3.86	3.69	5.92	7.50	44.98
Dark meat	18.4	7.17	5.70	4.56	4.02	2.77	0.92	3.81	2.88	6.10	8.75	46.68
Liver	18.9	8.15	5.55	5.55	4.60	4.12	0.74	5.10	3.80	7.05	7.30	51.96
Gizzard	19.8	6.00	4.40	3.78	3.18	2.57	0.76	4.53	2.48	5.55	6.00	39.25

* Values calculated at 16 per cent nitrogen.

TABLE 5

Average growth response of rats to chicken, fish, and beef protein diets

LOT NUMBER	DIET	NUMBER OF RATS	AVERAGE DAILY GAIN	AVERAGE DAILY FOOD CONSUMPTION	AVERAGE FOOD REQUIRED	AVERAGE GAIN
			gm.	*gm.*	*gm./gm. gain*	*gm./gm. protein*
1	Beef	7	2.55 ± 0.22	9.83 ± 0.50	3.88 ± 0.23	3.25 ± 0.27
2	Chicken	7	2.79 ± 0.24	9.83 ± 0.50	3.54 ± 0.27	3.56 ± 0.29
3	Fish	7	2.72 ± 0.23	9.83 ± 0.50	3.63 ± 0.33	3.47 ± 0.29

TABLE 6

Statistical comparison of growth of rats on diets of chicken, fish, and beef protein

LOT NUMBER	DIETS COMPARED	AVERAGE DAILY GAIN			AVERAGE GAIN		
		Mean difference	Standard error of difference	t*	Mean difference	Standard error of difference	t*
		gm.	*gm.*		*gm./gm. protein*	*gm./gm. protein*	
1–2	Chicken vs. beef	0.24	0.33	0.73	0.31	0.40	0.78
2–3	Chicken vs. fish	0.07	0.33	0.21	0.09	0.41	0.22
1–3	Beef vs. fish	0.17	0.32	0.53	0.22	0.39	0.56

* A value for t of 2.447, representing the 5 per cent point for comparison based on the number of degrees of freedom, would be significant.

Animal feeding tests revealed no significant differences in the efficiencies of chicken meat, beef meat, and fish flesh proteins when fed to rats at levels of 8 per cent in test diets.

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Work Simplification—Making the Job Easier[1]

MERLE D. SCHMID

Partner in charge of Engineering, Industrial Management Engineers, Chicago

MANY new factors and influences that were not present in the past now affect the dietitian's work—factors which definitely complicate her job and increase the responsibility and authority placed on her. The dietitian today, in common with managers in industry and other service organizations, is constantly faced with labor relations problems which require all of her skill and tact to solve.

For more than a decade, labor in this country, especially organized labor, has become progressively stronger and more and more in a position where the individual employee can, and does decide what and how much work he will do. Because of this new power in the hands of workers, many managers are finding it necessary to handle their workers differently. Actually, however, these so-called new methods are those which good managers have used, and which all managers should have used, in the past.

The dietitian is the logical person to solve such problems in the service kitchen, since she is "on the spot" and has a better opportunity than anyone else to have a complete picture of the situation. If she jumps to conclusions without considering all of the facts and their interrelationships, she is not using her strategic position to the best advantage.

Conditions are continually changing in a service kitchen, and a correct decision today may not be correct six months or a year from now. The dietitian should decide at the time she takes an action when it should be followed up or checked. Then she should continually watch for changes in output and attitude so that she is "on top" of her job when and if supplementary action is required to modify the original decision. Thus she will definitely have control of her department and, furthermore, will not have to spend such a large part of her time in day-to-day personnel problems. She must know and understand each of her employees and make her decisions and develop new work procedures with this constantly in mind.

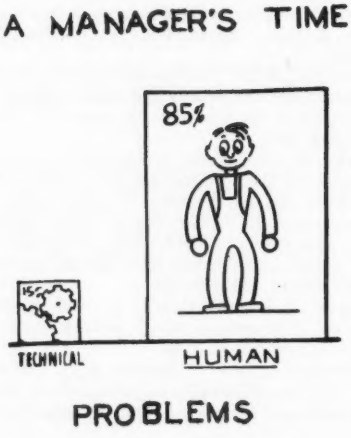
[1] Presented at the 30th Annual Meeting of the American Dietetic Association in Philadelphia, on October 15, 1947.

It is unfortunately true that one action may be effective in solving a problem concerning one person, but that the same action may fail altogether with the similar problem and another employee. Because of this, and because any manager is only human and subject to error, each action should be followed; if it does not work properly, the whole situation should be re-examined to find the correct action.

THE HUMAN PROBLEM

All managers, including dietitians, have one omnipresent problem in common, which is by far the most important they are called upon to solve. This problem is "human." How people react and how they can be led to do the things required by the job is the first consideration of a good manager. These human problems must be solved quickly and accurately by the dietitian when they occur.

As a manager, the dietitian can much more easily delegate responsibility for the technical details of work under her control than she can delegate details concerning personality problems. Subordinates may be as well, or better skilled in the technical details of food preparation than the dietitian, but the responsi-



bility for the "personality engineering" required to solve human problems rests squarely on the shoulders of the dietitian in her capacity as a manager.

Because of the type of labor available today and because of the need for close supervision of employees, the average dietitian finds herself much more of a manager than a technician, and a much larger proportion of her time now has to do with human problems. A recent survey in both manufacturing and service industries indicated that of the problems confronting the average manager only 15 per cent concern technical matters while 85 per cent concern people. True, the dietitian's scientific and technical knowledge is indispensable, but the possession of this knowledge alone cannot make her a good manager, since she must first have an understanding of people and a strong foundation for good relationships with the people whom she supervises.

As a manager, the dietitian does not personally prepare food and serve meals. The service comes only through the people whom she employs. Therefore, the dietitian is in reality working with people, who in turn provide the actual service.

All managers are faced with varied and complex problems. A successful manager must be able to solve these problems quickly and accurately and continually be "on top" of her job. There are no standard solutions or rules that will solve each problem coming to the dietitian. Solution of these problems requires confidence and resourcefulness on her part.

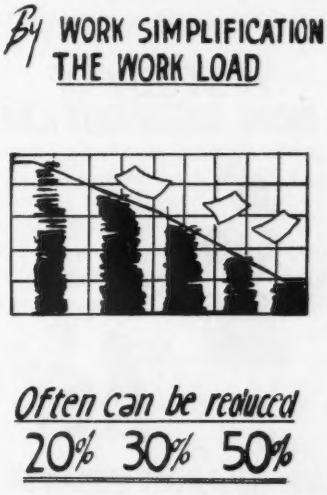
BUILDINGS, EQUIPMENT, AND METHODS

One feature in the management problems of a service industry which is different from the usual present-day manufacturing industry is the very large proportion of the total cost of operations made up by labor costs. Since the productivity of labor is dependent upon both the equipment available and the work methods used to do the job, the lowest labor cost cannot be attained unless the layout of the building and the available equipment make it physically possible for the employees to do an efficient job.

A recent trend in service industries, which parallels a consistent long-term trend in manufacturing industries, is the practice of providing more and better facilities and equipment. However, even with the most up-to-date equipment, the dietitian must see that her employees continually use proper methods, or she will be unable to attain anything like full productivity in her department. She must remember in connection with this trend that when new and better equipment is provided, *methods must keep pace.*

DEFINITION OF WORK SIMPLIFICATION

In the last ten years one of the most effective aids to industrial management in the area of improvement in methods has been the development of work simplification programs. Because at the present time dietitians are faced with many of the same type of management problems that industrial managers have had to solve, we would like to suggest that the application of modern management techniques can greatly simplify most phases of food production operation. We also want to present, in some detail, techniques and procedures which can make it possible for a dietitian to increase greatly the effectiveness of her labor force and to do it *now.*



Essentially work simplification means improving jobs *by taking "WORK" out of work.* Work simplification involves a study of the details of individual jobs and the development of improved methods of doing these jobs by finding better and simpler ways of doing each detail.

Work simplification *does not mean* hurrying the worker! It *does not mean* doing the same job faster using the same method! It *does not mean* a speed up!

It *does mean* making improvements in methods by eliminating unnecessary parts of the job (taking the

"WORK" out of work). It *does mean* making improvements by combining and rearranging other parts of the job and by making all of the *necessary* parts easier and safer to perform.

Improvements in methods make it possible to do *better work* with *less effort* and without hurrying.

Work simplification provides the means by which a greater percentage of the effort expended by employees in a kitchen can be directed into effective channels. Because there is a tremendous amount of "wasted" effort in the average food preparation center, there are great possibilities for the application of work simplification. Extensive programs of work simplification can usually reduce the work load as much as 20 and often as much as 50 per cent.

Although each job in a hospital, hotel, or restaurant kitchen may differ from all other jobs, it has been definitely proved that the technique of work simplification can be applied to all jobs. This technique does not consist of a set of rules to solve all of the various problems encountered in a kitchen; it consists of a systematic way to work out problems.

WORK DISTRIBUTION

A dietitian in charge of a large food preparation center has at least one major scheduling problem to solve before appreciable improvements can be made by a work simplification program aimed at improving and simplifying individual jobs. Scheduling means the proper distribution of tasks between individual jobs and employees. When a definite study of job details is made in a kitchen, it is not unusual to find a number of examples of duplication of effort.

The elimination of this duplication of effort is one of the major ways by which the total work load in such a kitchen can be reduced. If a dietitian sees that there is a proper division of labor and that various tasks are distributed intelligently between the different work stations, this alone will provide a step forward in a work simplification program.

Time-Consuming Activities

Those activities in each department which take the most time are the ones which the dietitian should study first. It is often possible to make a chart of the various types of activities done by the different employees in the kitchen and, from such a "distribution of work chart," quickly identify the most time-consuming activities. To prepare such a chart, it is necessary first to make a list of each task done by each person, next determine what activities are carried on in each unit or department, and then compare in chart form each activity against each person doing this activity.

Misdirected Effort

When such a detailed study is made, it is quite likely that an appreciable amount of misdirected effort will be found. The usual place to find misdirected effort is on relatively unimportant tasks, and it not uncommon to find employees spending a great deal of time and effort on a few details which, for all practical purposes, might be left undone.

Proper Utilization of Employees' Skills

Each task done in a kitchen takes time. No matter how small or unimportant, it still requires some time and effort to perform. Whenever a highly skilled employee does a menial job, skill is being wasted. It is just as wasteful to have a person work over his ability as it is to have him work below it.

Unrelated Tasks

A study of the work distribution in a hospital, hotel, or restaurant kitchen often uncovers cases of individual employees doing many unrelated details with the result that in trying to be a "jack-of-all-trades" he is "master of none." Few human beings can do everything equally well. Also, whenever many persons are each spending some time on one type of work or detail, there is apt to be inconsistency, "buck-passing," and considerable lost time. It is, therefore, necessary to make sure that each employee is doing tasks that are generally related and which can be done easily without unnecessary running about the kitchen. If it is possible to concentrate all of one task or duty to one person, considerable savings in time and effort are usually realized, since this person not only does not have to switch from one task to another, but, because he is spending a much greater portion of his time doing just one task, he usually becomes quite proficient at it.

Distribution of Tasks

In checking the overall distribution of work in her kitchen, the dietitian should also consider how the

tasks are distributed. One person should not be given too much work just because he is a willing worker. On the other hand, nothing breaks down the morale of an ambitious worker as much as having too little or no work to do. The aim in studying the distribution of work is to be sure that the workload is spread evenly and fairly among employees.

When a dietitian makes a detailed study of work distribution in her kitchen, it will usually be found that the jobs of some employees look "thin" when compared to others. She should weigh these jobs in her mind and evaluate the importance and urgency of each duty. She should make a definite effort to spread the important and urgent assignments among the different employees in such a way that they will all get done.

WORK SIMPLIFICATION

Each person who supervises other people should remember that, to do anything well, he should observe, think, decide, and then act. When the dietitian approaches the development of a better method for a job under her control in a systematic manner, she can, and will develop improved methods considerably better than she ordinarily would have had reason to expect. She should always remember that no matter how efficient a job is now being done, there is *always* a better method.

Objectives of Methods Improvement

To be of the most benefit to a service organization, each improvement in method should make it possible to provide either:

(a) A better service using no more effort on the part of employees, or

(b) The same service using less effort, or

(c) The same or a better service at a cheaper cost to each person served, or

(d) The same or better service to more persons at the same or a lower total cost.

Steps to Follow in Work Simplification

To help managers analyze jobs under their control and develop improvements in methods that will make it possible to do better work with less effort and without hurrying, it has been found profitable to follow a definite pattern in simplifying jobs. This pattern is:

(a) Pick the job to be improved.
(b) Break down the job in detail.
(c) Question each detail.
(d) Work out a better method.
(e) Put the new method to work.

SELECTING THE JOB TO BE IMPROVED

In order to attain the objectives of a work simplification program most rapidly, the dietitian should see that the right improvements are made on the right job at the right time. This means that she must select a job to be simplified and start with first things first. A manager should be very careful in picking a job to be simplified. If she selects a job which logically is in need of simplification instead of studying just any job, she will be able to make improvements that will do the greatest amount of good at the proper time.

However, jobs that are in the greatest need of improvement are often very difficult to spot. It is easy to walk past a bad job condition day after day without seeing it. As a guide to be used in selecting jobs for improvement, it is well to consider that generally the greatest improvements can be made in (a) "bottleneck" jobs, (b) jobs that are very time-consuming, or (c) jobs that require "chasing around."

THE QUESTIONING ATTITUDE

The questioning attitude is a practical tool of great value which can aid materially in bringing about advancement and progress in an organization. It should become second nature for each dietitian to use this approach in all situations where she encounters problems. Used in this manner, the questioning attitude generally brings out many important suggestions for improvement.

Essentially, this questioning attitude is *applied common sense*. It is easy for a dietitian to apply it to her work, since basically the only requirement is that she approach each new problem with an open mind. She must not have preconceived ideas as to the answers she is going to get in solving her problem. She must not be prejudiced or biased. She must gather the necessary information, analyze it, and work out a solution on the basis of *facts* observed and determined. This approach is often spoken of as the scientific method. The application of this scientific method to her problems as a manager should not be too difficult for the dietitian, since she is familiar with such an approach to the technical phases of her job.

But, the questioning attitude requires somewhat more than just an open mind if real solutions to problems of management are to be obtained. It is possible for the dietitian to be open-minded in a passive sense; she may be receptive to suggested improvements, but do nothing about the suggestions. If she is to accomplish improvement, she must take the initiative in originating suggestions.

The mechanics of applying the questioning attitude to day-to-day problems is comparatively simple.

HOW TO STUDY WORK DISTRIBUTION

1. **What activities take the most time?**
2. **Is there misdirected effort?**
3. **Are skills used properly?**
4. **Are the employees doing too many unrelated tasks?**
5. **Is work distributed evenly?**

One of the quickest and surest ways of approaching a problem is to question everything about each job as it is now being done, assuming that nothing about the job is perfect. Many years ago Rudyard Kipling wrote a poem about his six honest servants, which goes like this:

> And keep six honest serving men
> (They taught me all I knew)
> Their names are WHY and WHAT and
> WHEN and WHERE and HOW and WHO.

This verse exemplifies the basic principles behind the questioning attitude.

WORKING OUT A BETTER METHOD

Can It Be Eliminated?

Of the six questions listed by Kipling, the question, "*Why?*" is the most important and should be considered first. The dietitian should ask the question "*Why?*" of each detail of the job she is attempting to simplify.

The second question, "*What?*" can often be considered together with the first question, by asking "Can it be eliminated?"—at the same time taking the first step in working out a better method. Thus the answers to the first two questions provide the basis for the first step in improving methods.

It is obviously a waste of time and effort to combine or simplify a detail of a job if the details can be eliminated. An example of an improvement that was made in the central kitchen of a large restaurant chain is typical of this type of improvement. The dietitian asked, "*Why* is it necessary to spend so much time untying bunches of beets and carrots?" This question was carried further, and she asked "*What* is the purpose of having the beets and carrots come to us tied in bunches anyway?"

HOW TO SIMPLIFY WORK

1. **Pick the job to be improved.**
   - **Is it a bottleneck?**
   - **Is it time-consuming?**
   - **Does it require chasing around?**
2. **Break down the job in detail.**
3. **Question each detail.**
   - **Why?**
   - **What?**
   - **Where?**
   - **When?**
   - **Who?**
   - **How?**
4. **Work out a better method.**
   - **Why?** and **What?** → **Eliminate**
   - **Where?**, **When?**, **Who?** → **Combine** / **Change sequence**
   - **How?** → **Simplify**
5. **Put the new method to work.**

A study of the problem showed that precedence alone caused farmers and produce distributors to continue to tie carrots and beets in bunches. Since this restaurant chain was a large user of vegetables, it was possible to convince the produce distributor that both he and the restaurant chain would benefit if the carrots, beets, and other similar vegetables were topped by the farmer and shipped in a manner similar to that used in handling potatoes and dried onions. This change was made, and a saving in time and effort was effected by both the farmer and the restaurant chain, since the unnecessary operations of tying the vegetables in bunches and subsequently untying them were eliminated.

If the dietitian had spent time and effort developing a simple method of untying bunches of beets and carrots, her time and effort would have been completely wasted as soon as the job of untying beets and carrots had been eliminated by obtaining this type of produce in bulk.

Can It Be Combined?

After all details possible have been eliminated, the next step is to question each of the remaining details of the job with the aim of combining them wherever possible. The answers to the questions "*Where?*" "*When?*" and "*Who?*" lead directly to the solution to the question, "Can it be combined?" thus providing another approach to the problem of improving methods. Many times two details of a job, if combined, can be performed as quickly as either one and sometimes in less time than either. The use of these questions leads to the second type of improvement in methods, combination of tasks.

Can the Sequence Be Changed?

The third step to be taken in improving a method, is to ask "Can the sequence be changed?" To do this, the dietitian should again consider the three questions, "*Where?*" "*When?*" and "*Who?*" This means viewing these questions from a slightly different standpoint, but one which also points out a simple and helpful means of applying the questioning attitude to the improvement of methods.

Often, consideration of the question, "Can the sequence be changed?" will open the way for further elimination and combination of details.

An example of a change in sequence in the details of a job within a hospital resulted in the much discussed terminal sterilization used in formula preparation. By changing the sequence of details in the procedure of preparing infant formula so as to use terminal sterilization following a clean but not aseptic preparation routine, it is possible not only to provide a positive sterilization, but by such a change in sequence, to effect a simplification of work.

Can It Be Simplified?

Simplification is the final step in improving methods. After a dietitian has studied thoroughly each

detail of the job and has asked of each detail the five questions discussed above, she will undoubtedly have the key to many improvements without having actually developed a simpler procedure. It is only after she has made all improvements possible by eliminating, combining, and changing the sequence that she is ready to begin simplifying the individual job details. The use of the sixth of Kipling's questions in improving methods leads to the question "Can it be simplified?" This is the "*How?*" of the six questions of analysis for work simplification.

PUTTING THE IMPROVED METHODS TO WORK

Throughout the entire work simplification program as conducted in a service organization, there is a strong undercurrent of personalities. *People* make the analysis and develop the improved method. *People* must be sold on changes. *People* are affected by the changes, both as *people* doing the work and *people* receiving the service.

The dietitian must remember that each new method affects workers. Often it affects their whole lives, and it is only natural, therefore, that workers resent and resist any change in method as a criticism of their abilities and sincerity on the job. The dietitian's problem is to interest these people, convince them of the importance of the improved method, and "sell" them on it. Nothing should be said, done, or implied that will give the worker, or any member of management, reason to feel the methods presently used by the worker or the abilities of either the worker or management are being belittled. That is the *human problem*!

How to Overcome Resistance to Change

When attempting to sell her new and improved method, it is very important that the dietitian's approach is such that it develops the proper attitude and perspective in the employees. If her approach is genuinely sincere, each person concerned will be convinced that the proposed change is for his benefit and is not being presented as a criticism of his methods or abilities. When this cooperative attitude can be established with all persons concerned with the new methods, it is quite easy for the dietitian to develop interest. Then, it is easy to convince and then "sell" the new method.

If the best possible cooperation is to be obtained, everyone closely associated with the method should participate in the improvement.

It is possible to reduce the resistance to change by workers if they understand the necessity of the improved method. When and if the workers and others in management have confidence in the ability and sincerity of the dietitian developing and proposing the new method, it will be easier to minimize the normal resistance to change. If, in addition, the workers and others in management are in full agreement with the aims and method of approach used by the dietitian, a much greater reduction in this resistance can be accomplished.

If, after promoting understanding, confidence, and agreement, the dietitian can obtain participation by the workers and managers affected directly and indirectly by the new method, it will be easily "sold" and practically no resistance to change will be apparent. This is true, since all who might be expected to resist a new method as reflection on themselves would be working and participating in the activity and as such, the new method would be their "baby" and they would be enthusiastic for its adoption.

To the Dietitian

You hold in your menus the shape of the human figure, whether those at your tables are to be too fat or too lean. You can, by the essence of food, turn a wan face into a healthy, smiling countenance. By careful, scientific planning you can transmute the copper pennies of a limited budget into the golden nutrition of well-being. You work with something of which everyone partakes at least three times a day, that babies and children think about almost continuously, and that never satiates a much too large portion of the hungry creatures of the earth. The feasts you prepare are solace for the lonely, the ill, the loveless. The calories, odors, and tastes are too frequently a substitute for affection and human understanding, causing the guests of your tables to wax fat upon their unhappiness. A pinch of this vitamin or that a day keeps depression away. This factor builds healthy bones, and that sharpens the eyes to rival those of the proverbial cat. You practice the art of culinary camouflage to foil the gastronomic foibles of finicky humans. You help the doctor prescribe and the nurse to woo back to health. You discover the useful unusual in strange fruits, exotic viands, and disdained by-products. You can change the mores of the stomach and of the palate. To the butcher, the baker, and the vitamin maker, you are consultant and customer. You, dietitians of this modern era, are the high priests and the efficient engineers of food, the energy substance of the human earth.—*From an address given by Watson Davis, Director, Science Service, Washington, D. C., at the A. D. A. Press Relations Luncheon in Boston on October 21, 1948.*

Thiamine and Riboflavin Retention in Beef Tongue[1]

ISABEL NOBLE, JOAN GORDON, and LOIS CATTERSON

Division of Home Economics, University of Minnesota, St. Paul

IN THE present study, the thiamine and riboflavin contents of beef tongue have been determined on three lots after cooking and on two other lots both before and after cooking. From the latter samples the percentages of thiamine and riboflavin retained during cooking have been calculated. These data were gathered to supplement the few that have appeared in the literature. McIntire *et al.* (1) and Mickelsen *et al.* (2, 3) have reported thiamine values of 0.16 and 0.284 and riboflavin values of 0.28 and 0.220 mg. per 100 gm. raw beef tongue. The former workers have also reported values of 0.05 and 0.27 to 0.29 mg. per 100 gm. for the thiamine and riboflavin content of cooked tongue, but Baker and Wright (4) give a range of values for thiamine (0.09 to 0.135 mg. per 100 gm.) which starts considerably higher than the figure given by McIntire. Pyke (5) reports finding a negligible amount of thiamine in cooked tongue.

EXPERIMENTAL PROCEDURE

The tongues were purchased from a retail market at five separate times in amounts averaging either 4 or 8 lb. Those comprising the first three lots were thoroughly washed, then cooked until tender (an average of 3 hr.) in enough simmering water to cover (1500 to 2000 ml.) in a tightly covered kettle. Those making up the last two lots were washed as before, then divided into as similar appearing halves as possible. One set of halves from each lot was used as the raw sample; the other was cooked as described. The edible material from each raw and cooked sample was ground and thoroughly mixed, and aliquots were taken for thiamine, riboflavin, fat, and moisture determinations.

Thiamine and riboflavin were determined by the Conner and Straub (6) and the Peterson, Brady, and Shaw (7) methods, respectively. In each case, internal standards formed the basis of calculation, and recovery samples to which a known amount of thiamine or riboflavin was added before extractions were run with each determination. The average recovery of thiamine was 97 per cent, with a range of 92 to 102 per cent; that for riboflavin was 98 per cent, with a range of 96 to 102 per cent.

Fat was determined by the method of Oesting and Kaufman (8), and moisture by the difference in weight of several 10-gm. portions before and after drying for 36 hr. at 60°C. and 25 in. of vacuum.

RESULTS AND DISCUSSION

The thiamine and riboflavin contents of the tongues are given in Table 1 in terms of milligrams per 100 gm. edible portion, milligrams per total lot cooked, and milligrams per 100 gm. dry, fat-free solids. As may be seen from this table, the thiamine content of the two samples which were analyzed raw was around 0.1 mg. per 100 gm. moist weight and the riboflavin content about 0.3 mg.

TABLE 1

Thiamine and riboflavin content of raw and cooked beef tongue

LOT NUMBER	THIAMINE			RIBOFLAVIN		
	In moist meat		In dry, fat-free solids	In moist meat		In dry, fat-free solids
Raw						
	mg./100 gm. E.P.	*mg./lot*	*mg./100 gm. E.P.*	*mg./100 gm. E.P.*	*mg./lot*	*mg./100 gm. E.P.*
4	0.123	1.873	0.537	0.301	4.584	1.319
5	0.083	1.276	0.417	0.329	5.060	1.647
Cooked						
1	0.041		0.190	0.341		1.598
2	0.026		0.104	0.369		1.348
3	0.030		0.122	0.384		1.581
4	0.042	0.482	0.155	0.358	4.113	1.331
5	0.046	0.496	0.183	0.358	3.859	1.430

[1] Scientific Series Paper No. 2386, Minnesota Agricultural Experiment Station. The work was done as a part of the National Cooperative Project, Conservation of the Nutritive Value of Foods. Received for publication March 3, 1948.

This value for thiamine is slightly lower than that of McIntire *et al.* (1) and considerably lower than that of Mickelsen *et al.* (2), while the one for riboflavin is considerably higher than those given previously (1, 3). The thiamine content of the cooked samples ranged from 0.026 to 0.046 mg. per 100 gm. moist cooked meat and the riboflavin from 0.341 to 0.384 mg. These values, like those for the raw meat, are lower for thiamine and higher for riboflavin than are the ones reported by McIntire *et al.* (1).

The data show no consistent difference in thiamine or riboflavin content between the groups cooked in halves (Lots *4* and *5*) and those cooked whole.

The percentage retentions of the thiamine and riboflavin are given in Table 2. These values have been calculated on the basis of the amounts of thiamine or riboflavin present in the total sample cooked and in 100 gm. of dry, fat-free solids. The corresponding values are within experimental error of each other, indicating as have other data from this laboratory (9), that either method of reporting may be used.

The retention values for thiamine showed that on the average a little more than a third of the quantity of thiamine originally present in the raw samples remained in the tongue after cooking. This amount was slightly higher than that reported by McIntire *et al.* (1). Another third was dissolved in the cooking water, thus making a total retention in the meat and cooking water together of about two-thirds of the original quantity present in the raw samples. This proportion was about twice that reported by McIntire *et al.* (1).

The figures for retention of riboflavin indicate on the other hand that a large proportion of that vitamin was retained in the cooked meat—perhaps as much as nine-tenths of that present in the raw sample—and that the cooking liquid contained a large amount also. Thus the total riboflavin found in the cooked meat and in the cooking liquid was greater than the quantity found in the raw sample. Similarly high "retentions" of riboflavin have been reported by Hinman and co-workers (10), Jackson *et al.* (11), and Rice and Robinson (12).

TABLE 2

Retention of thiamine and riboflavin in beef tongue during cooking

LOT NUMBER	RETENTION			
	In meat		Dissolved in water*	Total*
	On basis of all of meat cooked	On basis of 100 gm. dry, fat-free solids		
Thiamine				
	%	%	%	%
4	26	29	37	63
5	39	44	50	89
Riboflavin				
4	90	101	41	131
5	76	87	33	109

* Based on amount in entire raw sample.

SUMMARY

The thiamine and riboflavin contents of beef tongue have been determined by fluorometric methods on three lots after simmering until tender (an average of 3 hr.) in sufficient water to cover and on two other lots both before and after similar cooking. They ranged around 0.10 and 0.30 mg. per 100 gm. moist raw meat and around 0.04 and 0.35 mg. per 100 gm. moist cooked meat, respectively.

The amount of thiamine retained in the tongue after cooking was about one-third of the quantity originally present in the raw sample. Another third was found in the cooking liquid.

The amount of riboflavin retained in the cooked tongue was around nine-tenths of that present in the raw sample. The quantity dissolved in the cooking liquid was large also, so that the total riboflavin in the cooked meat and cooking water was greater than the amount found in the original raw sample.

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Editorial

GRACE BULMAN RECEIVES 1948 MARJORIE HULSIZER COPHER MEMORIAL AWARD

At the Annual Banquet of the American Dietetic Association, held at the Hotel Statler, Boston, on October 22, Grace Bulman, Chief, Dietetic Division, Department of Medicine and Surgery, Veterans Administration, was awarded the Association's highest honor—the Marjorie Hulsizer Copher Memorial Award.

This Award was established in 1944 when an anonymous gift of $5000 was made to Barnes Hospital, St. Louis, for the purpose of perpetuating the name of Mrs. Copher in dietetics. An additional sum has since been added to the original fund, and the interest from the fund each year goes to the person selected by the Executive Board of the American Dietetic Association with the advice of the Director of Barnes Hospital. The recipient each year is chosen for outstanding work in dietetics.

This year's award, presented to Miss Bulman, reads as follows: "In recognition of her meritorious achievements as Chief of the Dietetic Section, Medical Division, United States Veterans Bureau, and later Chief of the Dietetic Division, Department of Medicine and Surgery, Veterans Administration. . . . during which she has established high standards within her sphere of responsibilities and brought nationwide advancement to the profession through her quiet yet dynamic leadership, her untiring effort and exceptional ability, her courage and deeply unselfish devotion to its noble purpose."

In making the presentation at the banquet, Helen A. Hunscher, President of the Association, said:

"Each year since 1945 the American Dietetic Association through the Marjorie Hulsizer Copher Memorial Award and in cooperation with the trustees of Barnes Hospital, St. Louis, has been privileged to confer its highest honor upon a member of this Association. With a dual purpose we call to remembrance Mrs. Copher and we honor one who like her served with great distinction and nobility of character.

" 'Outstanding work in dietetics' is the official and bald determinant in selection of the recipient, but the memory of Mrs. Copher has served like a beacon to guide those charged with the responsibility. They have demanded more than this—the worldly measure of success. They have sought one who has encouraged and inspired, one who without fanfare or thought of personal aggrandizement has held fast to her objectives and achieved them quietly and effectively and mainly in the face of great odds. Moreover, they have sought one whose strength of character and ability is matched by a modesty that gives high credit to her associates; one who upholds the good of her profession and her co-workers first, and herself last. All this should be the true measure of greatness, of 'outstanding work in dietetics.'

"We, therefore, proudly and surely acclaim the fitness of our 1948 recipient of this honor—she, whose service, the Dietetic Division, Veterans Administration, is now charged with responsibility for the food service in 126 hospitals, employing 700 dietitian members of this Association. Thirty more hospitals are scheduled for completion in 1950. Through twenty-five years, the aftermath of two world wars, and three administrations of veterans' services, she has steadily and effectively pursued her high objective—the nutritional betterment of hundreds of thousands of Army, Navy, Marine, and Coast Guard veterans within these hospitals. As an Army hospital dietitian overseas in World War I and later as a Public Health Service and Veterans Bureau hospital dietitian, she demonstrated her fitness and established a background of experience for later and greater responsibilities. But her sympathetic understanding, her generous heart and spirit are innate, as are her graciousness and gentleness. It is these we honor quite as much as her worldly accomplishments. In her public attainments we see merely the bold pattern of her life's effectiveness. Etched in finer detail are those other obligations which her warm heart enabled her to meet."

DR. RUTH WHEELER

Dr. Ruth Wheeler, a prominent and beloved member of the American Dietetic Association, died on September 29 in Poughkeepsie, New York. She was a charter member and a former president. During the term of her office from 1924 to 1926, her foresight made the JOURNAL OF THE AMERICAN DIETETIC ASSOCIATION a reality. She predicted (1) its growth from a "modest quarterly" to a monthly journal serving the varied interests of the members . . . "if it shall supply the very evident need for such a publication and if the members of the

Association support it by . . . frequent contributions to its pages."

As President, she proposed the standards for membership which are the basis of the present requirements. In her presidential speech at the 1925 convention in Chicago, she said (2), " . . . work so intensely concentrated as that in hospitals . . . demands in the dietitian such a breadth, sympathy, and mental outlook as are greatly helped by a broad and protracted education."

Her own education was received at Vassar College after which she received the degree of Doctor of Philosophy from Yale University. She was a member of Sigma Xi, of the American Biological Chemists, and a Fellow of the American Association for the Advancement of Science.

Dr. Wheeler was Associate Professor of Dietetics and Nutrition at the University of Illinois from 1912 to 1916, and Director of the Home Economics Department of Goucher College from 1918 to 1921. From 1926 to 1944 she was Professor of Nutrition and Physiology at Vassar College and Chairman of the Division of Euthenics and Director of the Vassar Summer Institute of Euthenics, 1929–42. During her chairmanship, the Vassar Summer Institute of Euthenics came to have worldwide renown. To this Institute come those who are interested in better living, either for the community or for personal family life. Although her primary interest was in nutrition, the Institute included the study of psychologic, economic, sociologic, and other factors which contribute to better living.

Her contributions to the hospital dietitian were made at the State University of Iowa, Iowa City, where she was Director of the Nutrition Department and Professor of Nutrition in the Medical School; and at the Presbyterian Hospital, New York City, where she served as Consultant in Nutrition to the Department of Medicine from 1926 to 1930.

Dr. Wheeler was the first to emphasize the need for adequacy in the therapeutic diets. Her belief that therapeutic diets were modifications of the normal diet was published in 1926 in *Talks to Nurses in Dietetics and Dietotherapy*, written in collaboration with her sister, Helen Ward Wheeler. A recent comment on this book was, "This book is twenty years old and its vitamins are out of date, but the philosophy is still sound." This comment is a tribute to the authors' vision.

As a director who trained dietetic interns, she assigned to them those responsibilities and duties which befit the dietitian and pioneered in granting them the privilege of graduate study at the university. In a letter to an applicant to her first class in 1923–24, she said, "I do want to be assured that you will stay twelve months, that you will fit into the organization, and will trust me to apportion your time to the varied sciences, and that you will help us prove that interns in nutrition are as indispensable to hospitals as other interns." The academic opportunities provided for that first class were exceptional. The hospital responsibilities allotted were educational and important, but most valuable was the personal contact with Dr. Wheeler. She inspired the group to aim for high professional standards and for scientific accuracy in a field which should never be static.

In 1924, in a letter to a young unemployed dietitian, Dr. Wheeler wrote, "Come along to the convention in Swampscott, meet all the nice people, visit the hospitals, and apply to the ones you like. There will be an extra bed in my room for you." Her warm kindliness as well as her faith in the ability of her interns are exemplified by this incident.

Dr. Wheeler transmitted a professional idealism and a dynamic stimulus to interns and staff dietitians. These are attributes of a beloved teacher and a great leader. It was fitting, therefore, that at the Chicago convention in 1944, a plaque bearing the Association's seal was presented to her in recognition of her service to the American Dietetic Association and the profession of dietetics.—*Nelda Ross, Director of Dietetics, Presbyterian Hospital, New York City.*

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A.D.A. LOANS FOR GRADUATE STUDY

At the 29th Annual Meeting of the American Dietetic Association held in Cincinnati in 1946, the Executive Board and the House of Delegates approved the following plan for encouraging graduate study by members. State and local associations are urged to encourage their members to support and use this fund.

In an effort to encourage graduate study in the field of nutrition and dietetics by younger members of the American Dietetic Association, a Loan Fund for Graduate Study has been established. It is increasingly apparent that the profession needs more members qualified to accept responsible positions of leadership for which advanced degrees are requisite. Although some approved internships now offer graduate credit, few provide an opportunity to complete the work for the master's degree unless additional time is spent in study. Thus the Association is offering loans to qualified applicants who wish to continue with graduate work toward an advanced degree, but who might not feel able to finance such study without some financial help.

This Loan Fund for Graduate Study was originated by gifts from members and friends of the Association during the past five years. Additions are currently being made by state, territorial, and

local dietetic associations, by memorial gifts, bequests, and interest on special funds held by the Association. The opinions expressed by several members that such funds be used for fellowship purposes have been given careful consideration by the committee and the Executive Board. In view of the limited nature of the fund, it has been decided that for the present at least, loans rather than outright gifts can benefit more people.

Funds will be administered by the Executive Board of the Association upon recommendation of the Finance Committee of the Board. A standing committee to be known as the Committee on Loan Fund for Graduate Study will review applications and select recipients. The policies pertaining to the granting and administering of the Loan Fund for Graduate Study are subject to change as more funds become available. Present policies are as follows:

1. ELIGIBILITY OF APPLICANTS:

Any person who has been an active member of the American Dietetic Association for at least two years and wishes to pursue graduate study leading to an advanced degree may make application for an A.D.A. loan. No more than three applicants from any one state or territory can be considered.

2. HOW AND WHEN TO APPLY:

Applications for loans should be made on special forms which may be procured from the A.D.A. office in Chicago, or from the state dietetic association secretary. Application must be accompanied by full credentials, including transcript of college credits, a photograph, and a personal letter stating plans for graduate work, time and place contemplated, degree sought, and future plans. Application must be endorsed by a state officer or House of Delegates representative of the state association, and by one other member of the Association familiar with the applicant's work in a professional capacity. Applications must be in the Chicago office before March 1, 1949. Notification of loans granted will reach recipients before May 1, 1949.

3. AMOUNT OF LOANS, INTEREST, REPAYMENT, AND SECURITY:

Loans of any amount up to $1000 may be made to qualified applicants, the total loans or installments to be adjusted according to circumstances. The total amount loaned in any one year shall be determined by the total funds available and so proportioned as to provide for equivalent loans in subsequent years.

Interest on loans shall be charged at the rate of 2 per cent annually, beginning one year from the date of the loan. Repayment of the principal should be made as soon as possible in order to allow other members of the Association to benefit from the loan privilege. It is expected that all loans will be repaid within three years from the date of the loan.

Security for these loans may be provided by endorsement by a responsible person or by life insurance carrying a rider providing for payment of the loan to the Association in case of death. The terms of loans made may not be uniform but may vary according to the facts in particular cases as the administering authorities may deem advisable.

4. SELECTION OF LOAN RECIPIENTS:

Final selection of recipients from among applicants will be made according to qualifications and need as judged by members of the Committee on Loan Fund for Graduate Study. The names of applicants and recipients of loans may be kept confidential if so requested.

Why Be a Member?

The following item has been published previously in several places, including *The Double Bond* and *Rayon finishers*. The editors are, however, presenting it here, for it seems particularly appropriate to the field of dietetics, and some readers of our JOURNAL may not have seen it before.

D. A. Rochester of the University of Nebraska has the following to say about membership in professional societies and trade associations:

"I do not recall that I have ever known a person who has stood high in his business or profession who has not actively affiliated himself with organizations, attended meetings, and read magazines concerned with his affairs. These seem to be the ways in which people keep up to date and alert to the new things which are going on. I should dislike to trust myself or a member of my family to the care of a physician who does not belong to a medical association, who does not read professional journals, nor go to professional meetings. I would equally dislike to think that my child is being taught by a teacher who has not sufficient interest in her work to secure the information and inspiration that come from such activities."

Current Comment

THE DIETITIAN'S ROLE IN THE NATIONAL HOSPITAL PROGRAM

MIRIAM KAUFMAN

Dietary Consultant, Office of Hospital Service, Division of Hospital Facilities, U. S. Public Health Service, Washington, D. C.

The American Dietetic Association has set for its goal "the improvement of the nutritional status of all human beings." Dietitians in the hospital field as well as in others are striving toward this mark of perfection. How far have we gone toward its achievement in the nation's hospitals? How much has been accomplished in hospital dietetics where the profession has focused much of its attention and where the spotlight of public opinion is turned upon the profession?

In the state surveys of general hospitals conducted in 1945–46, under the guidance of the Commission on Hospital Care, each hospital was asked if the person in charge of the dietary department had served a hospital internship in dietetics. This is what was reported in several states chosen at random for illustrative purposes:

> In California, in hospitals from twenty-five to fifty beds, approximately one out of seven reported a qualified dietitian on the staff.
> In Louisiana one out of twenty-seven hospitals in the same category reported a qualified dietitian.
> As regards hospitals of 50- to 100-bed capacity, Illinois reported one out of five hospitals with a dietitian, and Massachusetts one out of two.

These figures only prove what we already know. Many of the nation's hospitals, one-third of which have fifty beds or less, do not have the benefit of a fully effective dietary service. This deficiency not only exists today but is likely to become more acute with the increased impetus given hospital planning and construction by Public Law 725, known as the Hospital Survey and Construction Act.

This important hospital legislation, passed in August, 1946, is a five-year grant-in-aid program to: (a) assist the states and territories in surveying their need for hospitals and health facilities and (b) to assist in the planning and construction of such facilities as are necessary "for furnishing" adequate, hospital, clinic, and similar services to all their people.

This law provides that the federal government will pay one-third of the cost of the construction by matching every two dollars ($2.00) of local funds with one dollar ($1.00) of federal funds. For this purpose Congress has authorized $75 million annually, the funds to be allotted to the states on the basis of population and per capita income.

To qualify for federal aid, each state is required to appoint a single state agency to plan and administer the hospital program. This agency must make a thorough survey of existing facilities and needs, draw up a complete plan for the distribution of hospitals and health centers, and submit its plan to the Surgeon General of the U. S. Public Health Service for approval. The survey is the key to the entire program, for it is the basis upon which the state hospital program is planned. Each state also must pass legislation requiring hospitals receiving federal aid to comply with minimum standards provided by the state for hospital maintenance and operation. This is usually accomplished through state hospital licensure laws.

The Surgeon General of the U. S. Public Health Service is designated as the Administrator of the program. The Division of Hospital Facilities carries out this responsibility. A Federal Hospital Council, whose members represent hospital and health fields and consumers of hospital services, advises and assists the Surgeon General.

This nationwide program presents an opportunity for the dietetic profession to participate actively in the planning, building, and equipping of improved hospital and health facilities. The dietitian can help her state and community to achieve these ends. The profession, thus, not only gains increased stature but sympathetic understanding and support from hospitals and the public. This program calls for long range planning. It calls for initiative and leadership in the hospital food service. A high standard of medical care requires a well operated food service department.

To participate effectively in this program dietitians may wish to consider the following action:

1. Find out about the hospital program by writing or visiting your state agency. In forty-three states the State Board of Health is the official agency, but if this is not the proper agency in your state, you will be referred to the correct agency.

2. Find out if a dietitian has been appointed or is affiliated with the State Advisory Council or the state agency. States having such a dietary consultant on their staff have found it highly advantageous to the total program.
3. Direct hospital planning groups to the state agency for assistance.
4. Stimulate the state dietetic association to discuss the Hospital Survey and Construction Program with particular reference to local situations. Offer your services as a group to the state agency and to your community by giving assistance to insure good physical planning.
5. Inform yourself on the cost of kitchen equipment as well as the cost of operating the dietary department.
6. Organize a group to analyze the local situation to determine kinds and types of personnel to staff the dietary department.
7. Take on yourselves part of the task of interpreting the hospital program to the public.
8. Prepare yourself to answer all questions regarding:
   (a) Physical planning of the kitchen and its relation to the patient areas of the hospital.
   (b) The selection of equipment of proper capacity and type.
   (c) Food costs and other operational costs of the dietary department.
   (d) Personnel problems, both lay and staff.

But what are you going to suggest to the state or community as a solution to the shortage of dietitians? We must be realistic. There will not be enough dietitians to go around and even if there were, most small hospitals feel they cannot afford a full-time dietitian. To meet this problem some states have employed a consultant dietitian who tours the state and acts as adviser and consultant to a number of small hospitals. One state conducted institutes in several areas for the benefit of the relatively untrained hospital food service managers. In some localities a single dietitian was employed by several small hospitals who used her services jointly. Still another suggestion is the contribution of a home economist who has had some experience in quantity cookery, perhaps with the school lunch program.

The actual building of the hospital is only part of the job. If our primary objective—the improvement of the health of our people—is to be fully realized, we must do our best to see to it that the hospitals built are planned to give maximum service to the patient and to the community.

Army Announcements Concerning Personnel

Miriam L. Mulford, R-2521, was promoted from the rank of Second Lieutenant to that of First Lieutenant during September, 1948.

The War Department has released the following official list of names of Medical Department Dietitians (not previously announced) who have been separated from service:

First Lieutenants

Beth Campbell, R-10091, Rt. #1, Box 191-J, Sarasota, Fla.
Eleanor Storm, R-2476, Hollis, N. H.

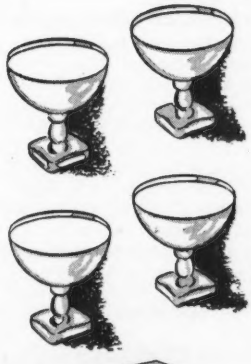
U. S. Public Health Service Appointments of Dietitians

The following dietitians have been appointed to the U. S. Public Health Service since January 1, 1948, and are on duty at Marine Hospitals operated by the Hospital Division of the U. S. Public Health Service:

Name	Position or Rank	Place
	Commissioned Corps	
Annette L. Buza	Senior Assistant Dietitian (R)	Ft. Worth, Tex.
Margaret Isabelle Donovan	Junior Assistant Dietitian (R)	Chicago, Ill.
Eliza Hardman	Assistant Dietitian (R)	Seattle, Wash.
Christian M. Huse	Assistant Dietitian (R)	Neponsit, N. Y.
Helen C. MacLean	Dietitian (R)	Norfolk, Va.
Rhoda Fallin Marshall	Junior Assistant Dietitian (R)	Norfolk, Va.
Julia B. Miller	Head Dietitian	Arlington Farms, W. Va.
	Civil Service	
Irene C. Bielak	Head Dietitian	Cleveland, Ohio
Margaret E. Graham	Head Dietitian	Baltimore, Md.
Ruth L. Ludtke	Staff Dietitian	Baltimore, Md.
Gertrude P. Mooney	Head Dietitian	New Orleans, La.
Bette Frances Sullivan	Staff Dietitian	Seattle, Wash.
Alice B. Taylor	Head Dietitian	Norfolk, Va.
Winifred Yates	Staff Dietitian	San Francisco, Calif.

Prognosis for Milk:

"change for the better!"



Patient acceptance of liquid milk is often difficult, if not impossible, to achieve in the face of intractable aversion to this essential nutrient. In such cases—with the use of "Junket" Rennet Powder or "Junket" Rennet Tablets—milk may be simply and quickly transformed into eye-appealing, taste-tempting rennet-custards . . . with no loss of the nutritional factors so important, particularly in infancy, childhood, pregnancy, and gastro-intestinal and post-operative conditions. Also, rennet-custards are digestively more acceptable because of the smaller, more friable curds produced in the stomach by the enzymatic action of rennin. Your patients (both young and old) will appreciate your recommendation of delicious rennet desserts, and you will thereby make the prognosis for milk and patient alike, a "change for the better!"

Make delicious rennet desserts with either

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Book Reviews

Synopsis of Pediatrics. By John Zahorsky and T. S. Zahorsky. St. Louis: The C. V. Mosby Company, 1948. 5th ed. Cloth. Pp. 449. Price $5.50.

This book is so planned that one chapter can be covered in each of the 60 hr. of lecture customarily assigned in medical schools to the subject of pediatrics. The essential points in symptomatology, diagnosis, and treatment have been covered from the standpoint of the practitioner who visits the home. Early chapters in the book are devoted to normal nutrition, feeding of well and sick infants, nutritional disorders and deficiencies, and so on. This section could have been made much more valuable without requiring additional space, if the table of Recommended Dietary Allowances together with a brief table of composition of foods commonly used for children had been included. As it is written, the information concerning food requirements and food values is scattered throughout the text and is poorly organized.

Many erroneous and obsolete statements appear in the chapters on feeding of children. For example: "There is a great tendency to overdo the vegetables in the diet. . . . Infants and young children are prone to become 'pot-bellied' when vegetables are fed in too large quantities." Again: "breast-fed babies do not need orange juice, but there is no objection to giving an orange drink after the third month." Because of the readiness with which children develop a "sweet tooth," it may be wondered whether it is wise to recommend that bread be "flavored with butter, jelly, honey, syrup, etc." The concensus of opinion now favors the introduction of solid foods long before the fifth month, as these authors advocate.

Dietitians will, no doubt, find this book to be a convenient and easily used reference whenever they desire information concerning the practice of pediatrics.—*Corinne H. Robinson, Lecturer in Nutrition, Temple University School of Medicine, Philadelphia.*

Foods—Production, Marketing, Consumption. By Jean J. Stewart and Alice L. Edwards. New York: Prentice-Hall, Inc., 1948. Pp. 490. Cloth. Price $6.35.

Today the ever changing national picture has presented a new trend in the study of food as a contributing factor favorable to internal environment of the body in achieving optimal health rather than freedom from disease. For study, this book has been divided into three sections, "The Need for Food by Individuals and Groups," "Production, Nutritive Value, and Buying," and "Principles of Cooking Foods."

The background is laid by presenting the need of food by the individual and by groups, followed by a discussion of food, the needs of the nation, and the international needs. The authors have given reliable, basic, up-to-date information in a concise style. Brief historical sketches have been interspersed throughout, making the subject more interesting for the student.

Emphasis has been placed upon the "eleven food groups" rather than the "basic seven." The patterns for the sections on production and principles of cookery have been built around these eleven food groups.

At the conclusion of each chapter a group of exercises for the student are suggested. These are practical and should provoke excellent group discussion. The bibliographies are brief, containing only recent material and excellent references for further investigation.

The scope of this book is broader than the average text book. It presents some of the most fundamental information basic to food selection and preparation in a style that would be interesting as well as useful to the college student.—*Edith A. Jones, The Johns Hopkins Hospital, Baltimore.*

Essentials of Food Preparation. By Madge Miller and Mary Barnhart. Dubuque, Iowa: Wm. C. Brown & Company, 1947. Pp. 261. Cloth. Price $3.

This text has been written to be used as an accessory in food preparation classes for college students who have had some chemistry. In treating the subject of standard products, the authors have aimed to establish standards by which good food products may be recognized. Each chapter is devoted to subjects including cereals, milk, beverages, and batters and doughs; the subject is introduced with a brief historical sketch, followed by information on composition, processing, the standard product, and very complete references. This text could be recommended for dietitians who are teaching in colleges, instructing student nurses, or are interested in reviewing the scientific principles of food preparation.—*Janet Engebretsen, Associate Dietitian, The Johns Hopkins Hospital, Baltimore.*

Paul Bragg's Health Cookbook. By Paul Bragg. New York: Alfred A. Knopf, 1947. Pp. 444. Cloth. Price $3.

A most complete herb chart, a chapter on "One World Cookery," and some unusual flavor combinations are the most outstanding features of this cook book.

Do "health foods" have a favorable connotation in the minds of readers? The popularity of "health food" stores testifies to the interest of many persons. Most dietitians, however, prefer to think of all foods as health foods, for we know that essential minerals and vitamins, valuable proteins, and necessary energy are furnished by a wise choice of all foods.

When one reads Mr. Bragg's book, it is obvious that the content is much more attractive than the title. He shows an unusual sense of flavors, using herbs and seasonings in delightful combinations. He makes suggestions as to the cultivation, harvest, and storing of herbs by homemakers, even those whose space is limited. Although this book does not deal with large quantity cooking at all, dietitians might profit from some of the new recipes and seasoning suggestions presented.

"One World Cookery" is a chapter which lists a few of the typical dishes of several nationality groups. In addition to the oft-repeated recipes, there are also some from India, the Philippines, Finland, Holland, and the South Sea Islands.

Section Three, "Special Purpose Diets," should be eliminated from the book which otherwise is so attractive. The information on special diets, particularly in the parts relating to weight gain and loss, is inaccurate, incomplete, and misleading.—*Virginia Bayles, Denver, Colorado.*

"Tests Show Savings of 15% With Hotpoint Equipment"

Robert Gardner, Mgr. Morrison's Cafeteria, Tampa, Florida

At right, Hotpoint baking and roasting ovens in Morrison's Cafeteria Kitchen.

Morrison's Cafeteria Cuts Meat Shrinkage 9% —Saves 10% to 15% in Deep Fat Frying

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Five Steps to Effective Institutional Food Buying. By A. A. Frooman. Chicago: A. Frooman and Associates, 1948. Pp. 577. Cloth. Price $10.

The author is a consulting specialist in institutional food buying; for over twenty-five years he has been associated with food buyers who have repeatedly expressed their need for a practical and effective guide to buying. With these needs in mind, the book was written over a period of seven years for all buyers who are unable to attend short courses or institutes on buying, but who are anxious to know the newest procedures. Beginning with the premise that there "are no secrets in the food industry," the author proceeds to outline the five effective steps to buying wisely and economically.

The first half of the book is devoted to step one, "What the Food Industry Offers," which describes in detail all canned, frozen, and dried fruits and vegetables. In treating each specific food, the definition, grades, counts, drained weights, producing areas, packing seasons, and excessive faults and imperfections are compiled in excellent form.

Step two, "Determine What Best Fits Your Needs," was developed to help with problems to be considered when deciding on selection for various types of service. Much of the material has been reduced to charts on number of servings per can, cans required per 100 servings, and cost per serving. More than 3500 itemized cost computations are given on products which range from 20 cents to $27 a dozen.

Step three covers "Written Specifications," and shows how to compile specifications based on recognized commercial descriptions. A master guide to commercial specifications appears for the ordinary canned, frozen, and dried foods.

Step four, "Work Out a Buying Procedure," is explained almost entirely by a presentation of actual buying procedures in states, hospitals, clubs, and universities. Finally, the fifth step, "Check and Inspect All Deliveries," summarizes the points which buyers and receiving clerks must practice to complete the buying procedures.

Although the author says, "There is no substitute for experience in determining variations within (grading) factors," an effective job in buying can be accomplished by following a general scoring and tolerance outline.

This book is a worthwhile guide not only for administrative dietitians but also for purchasing agents. The volume of material is presented in a very readable, well indexed, and concise form.—*Janet Engebretsen, Associate Dietitian, The Johns Hopkins Hospital, Baltimore.*

Recipes for Two. By Mary Lou Glass. New York: John Wiley and Sons, Inc., 1947. Pp. 387. Cloth. Price $3.

Truly this is a "cook book for brides," for much valuable information on menu planning, marketing, and preparing and serving foods for two is presented.

A new slant on menu planning suggests that one start with dinner; plan the main dish, then the main dish for luncheon or supper. Next, plan the vegetables for both meals, breads for all three meals, salads, desserts, and lastly breakfast, with beverages for all three meals. This method might assure inclusion of all essential foods.

Marketing information in tabular form, specific directions for preparation, and definitions of food terms would prove helpful to the young woman who is beginning to cook in her home without benefit of cooking instruction, either at home or at school.

Mrs. Glass presents recipes in an easy-to-follow form. Included is information on preparation time, a vital factor to the homemaker who is also employed.—*Virginia Bayles, Denver, Colorado.*

British Study Whale as Possible Source of Food

A research team was sent on an expedition by the Department of Scientific and Industrial Research of the British government on a whale factory ship, *Balaena*, in the fall of 1946 to learn the best means of obtaining from the whale carcass lean meat fit for human consumption. A previous expedition in 1939–1940 had shown on a small scale that whale meat could be preserved with little deterioration by storage at a temperature of 10°C. or below.

The 1946–47 expedition discovered that the fishy taste of whale meat which makes it objectionable was probably due to the method of handling the carcasses. In packing houses, animals are rested before slaughter, killed with a minimum of struggling, bled, eviscerated, dressed immediately after death, and then cooled quickly. In contrast, the whale is usually exhausted when killed, and it is not bled intentionally. In addition, many hours may elapse before the carcass is eviscerated and cooled.

The British research workers found that rapid cooling could be brought about by slitting open the body wall of the whale immediately after death and flushing with cold sea water. This massaging action of the sea also appeared to have the effect of freeing the muscles of blood, although the whale was not intentionally bled.

Whale meat ranges in color from pale pink to a dark liver color. However, these differences cannot be attributed to the amount of blood present. They appear to be associated with the type of whale and its age, the meat becoming darker as the whale grows older.

After the whale is killed, it is kept afloat by pumping in air. In this condition it may remain in the sea for a long or short period before it is dragged on board the factory vessel for butchering. To determine the freshness of the whale meat and hence its quality prior to freezing and shipping to Great Britain, the scientists were able to devise a rapid chemical test.—*From New York Times, May 2, 1948.*

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At your request we shall be glad to mail any or all of the following booklets:—

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★ **"Feeding Diabetic Patients"**

★ **"Reducing Diets and Recipes"**

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Current Literature

Contributed by Janette C. Carlsen and Ethel M. Miller, Dietary Department, The Johns Hopkins Hospital; Mrs. Corinne H. Robinson, Temple University School of Medicine; and the Journal Staff.

THE AMERICAN JOURNAL OF DISEASES OF CHILDREN

Vol. 75, March, 1948

*Plasma protein studies on normal newborn and premature infants. I. Plasma protein values for normal full term and normal premature infants. II. Use of concentrated normal human serum albumin in treatment of premature infants. L. G. McMurray, J. H. Roe, and L. K. Sweet.—p. 265.

*Semi-self demand feeding schedule for prematurely born infants. K. Glaser.—p. 309.

Plasma Protein. Levels of total serum protein and albumin were significantly higher in full term infants than in premature infants. However, within each group there was no correlation between the weight of the infant and the level of protein fractions. Administration of concentrated serum albumin to premature infants resulted in higher levels of total protein and albumin. These infants made more rapid gains in weight and had fewer illnesses than those with no protein therapy. The serum albumin was given three times weekly for three to four weeks; 3 cc. of the concentrated mixture (25 gm. per 100 cc.) was given per pound of body weight at each interval.

Self-Demand Feeding. The progress of over 200 infants born prematurely was studied. Of the group of 118 infants observed for eight months or more, 98 were Negro babies. The mother was instructed in the approximate amount of formula to prepare for each day, but no time schedule was provided. The mothers filled the nursing bottles, and infants were fed at such times and amounts as would keep them satisfied. The mothers were eager to return to clinic for advice from time to time. It was felt that the plan helped to preserve the mother's initiative and that the emotional satisfaction to the mother might well have a good influence on the mental growth of the child. The physical growth and well being of the infants was as good or better than that of infants fed according to more exact instructions.

AMERICAN JOURNAL OF PUBLIC HEATLH

Vol. 38, August, 1948

*Modified self-selection method of feeding preschool children in the home. M. F. Gutelius.—p. 1118.

*Nutrition appraisals in Mexico. R. K. Anderson, J. Calvo, W. D. Robinson, G. Serrano, and G. C. Payne.—p. 1126.

Vol. 38, October, 1948

Laboratory procedure for evaluating practical performance of quaternary ammonium and other germicides proposed for sanitizing food utensils G. R. Weber and L. A. Black.—p. 1405.

Feeding Preschool Children in the Home. A modified method of free choice in eating is possible for preschool children in the home without undue effort or expense. The success of this method of feeding presupposes a fundamentally happy home without undue emotional tensions. It cannot be entirely successful with children who have already acquired faulty eating habits. The attitude of parents is extremely important. It is most easily accomplished when the parent sets a good example and when the parent can hide worry and anxiety about what the child eats or annoyance at unconventional behavior and food jags. The program can be carried out most conveniently and happily when the children eat by themselves. The two children in this record were healthy and happy, took an adequate diet, and were developing conventional eating habits in their own time.

Nutrition in Mexico. This is a summary of a series of nutritional appraisals carried out on selected population groups in several areas on the high central plateau of Mexico. These studies have been done under the cooperative auspices of the Mexican Ministry of Health and the International Health Division of the Rockefeller Foundation. This article gives a comprehensive picture of the nutritional status and food habits of the Mexican people and shows that the common dietary pattern of these people is fundamentally sound. The food pattern is based on a liberal consumption of tortilla, beans, and chili peppers, supplemented to a greater or lesser extent with foods obtained locally.

AMERICAN JOURNAL OF SURGERY

Vol. 76, September, 1948

*Fads and fancy in treatment of peptic ulcer. F. Cunha.—p. 244.

Peptic Ulcer. Many of the so-called new theories of etiology and methods of treatment for peptic ulcer are in no sense new but have been tested before and found wanting. Since 1900 no less than forty-six different medical procedures have been outlined in the literature. The author concludes, "The patient has truly experienced hardship, misfortune, and insult." This paper should remind its readers of the unsolved problem of medical and surgical treatment of ulcers.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 137, August 14, 1948

*Management of tick typhus (Rocky Mountain spotted fever) in children. W. M. Kelsey and G. T. Harrell.—p. 1356.

*Risk of uremia due to sodium depletion. W. B. Macguire.—p. 1377.

Calcium-enriched meat. Current Comment.—p. 1469.

Raw versus autoclaved soy bean protein. Current Comment.—p. 1469.

Vol. 137, August 28, 1948

*Drastic food restriction. J. Brozek, C. B. Chapman, and A. Keys.—p. 1569.

*Nutritional problems of adolescence. J. A. Johnston.—p. 1587.

Pesticides: Chemical contaminants of foods. Editorial.—p. 1604.

Vol. 138, September 11, 1948

*Pasteurization and its relation to health. J. Andrews and A. W. Fuchs.—p. 128.

Vol. 138, September 18, 1948

Proteins in nutrition. H. B. Lewis.—p. 207.

Easter is coming too!

Here is an advance Spring Showing of two new Dole styles in pineapple—Confetti Salad and Sweet Potato Snowballs. We hope this early preview of these suggestions will make it possible for you to schedule them in your professional work before they appear in our Dole full color magazine advertisements just prior to Easter.

P. S. Mele Kalikimaka!
(Merry Christmas)

Patricia Collier
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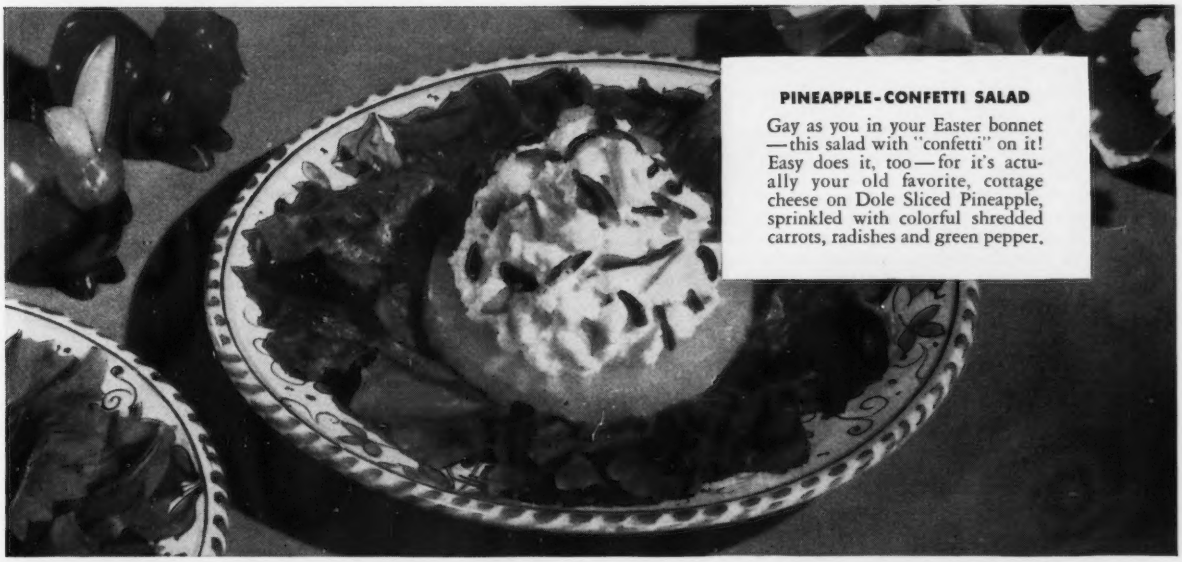
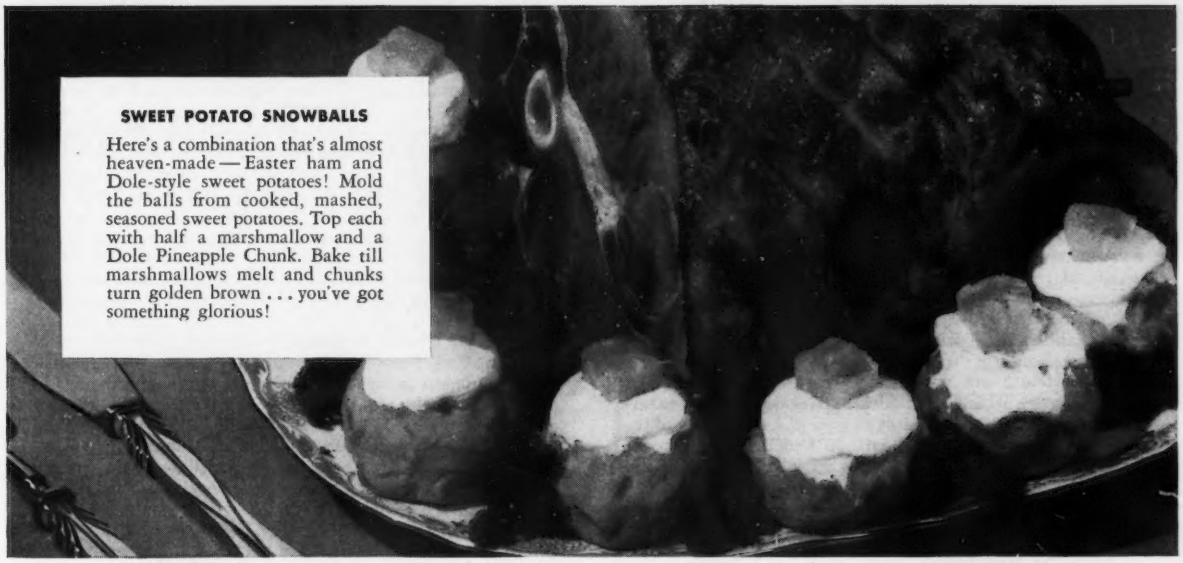


PINEAPPLE-CONFETTI SALAD

Gay as you in your Easter bonnet—this salad with "confetti" on it! Easy does it, too—for it's actually your old favorite, cottage cheese on Dole Sliced Pineapple, sprinkled with colorful shredded carrots, radishes and green pepper.



SWEET POTATO SNOWBALLS

Here's a combination that's almost heaven-made—Easter ham and Dole-style sweet potatoes! Mold the balls from cooked, mashed, seasoned sweet potatoes. Top each with half a marshmallow and a Dole Pineapple Chunk. Bake till marshmallows melt and chunks turn golden brown . . . you've got something glorious!

DOLE
PINEAPPLE PRODUCTS

Vol. 138, October 2, 1948

*The health department and the food of the people. R. H. Riley.—p. 333.
The unknown diabetic and how to recognize him. R. M. Wilder.—p. 349.
*Insulin and diet. H. T. Ricketts.—p. 353.
Dietary lipids in tuberculosis. Editorial.—p. 366.

Tick Typhus in Children. A number of severe cases of tick typhus (Rocky Mountain spotted fever) have been noted in South Carolina. In this paper the clinical course and complications of the disease, the pathology, and specific therapy are described. In addition, supportive therapy, which includes maintenance of nutrition, is suggested. In some cases as much as 7 gm. of protein per kilogram of body weight per day is needed to keep the patients in positive nitrogen balance. Most children, under the circumstances, are unable to take the food required, and should receive gavage feedings as soon as they refuse the diet. Since the liver may not be able to utilize amino acids, proteins should also be given intravenously.

Uremia and Sodium Depletion. Three case histories are given which indicate the possible dangers of a diet restricted in sodium, when such a diet is employed routinely for congestive cardiac failure and for hypertension. These studies demonstrate the variety of diseases in which uremia may be encountered as a response to sodium depletion.

Drastic Food Restriction. During the war it was possible to make observations on populations living under conditions of starvation and drastic food restriction. In addition, a mass of data were obtained from a study of experimental drastic food restriction carried out in this country. The combined material from these studies provide considerable support for the treatment in certain cases of hypertension by vigorous dietary limitation. It is suggested that caloric restriction may be fully as effective as sodium restriction in the lowering of blood pressure. The study made in Leningrad in 1943 after the lifting of the siege was impressive in that it called attention to the increase in incidence and severity of hypertension during recovery from semi-starvation. The studies reported here suggest that the uncritical application of regimens like that introduced by Kempner in the "Kempner diet" may not be without some danger to the patient.

Nutrition and Adolescence. Emphasis is placed upon the fact that in the adolescent, the rate of growth and the rate of metabolism show considerable instability. Elevated rates of metabolism often precede, and depressed rates follow the point of maximum growth. Particular attention is given in this article to the calcium and protein needs of the adolescent, to the diet of the obese adolescent, and to the vitamin D requirement. Also discussed are such topics as "The Adolescent and Tuberculosis," and "Menstrual Irregularities in Adolescence."

Pasteurization and Health. Since the merits of pasteurization have been challenged from time to time, a review of reports is presented which emphasizes the importance of pasteurization to public health. Accounts of outbreaks of milk-borne disease are given, the method of pasteurization is described, and the nutritive value of pasteurized milk is discussed.

Public Health and Nutrition. Presented here is a review of the changes which have occurred in human food habits during the past three decades, as well as a discussion of the problems of the future in regard to human nutrition. As far as the future is concerned, there is a need for better utilization of the abundant food supplies of this country. It is of particular importance to insure to every expectant mother and every growing child a diet which will make possible the fullest and most healthful development. There are, too, unfinished tasks in connection with the safety and sanitary quality of our food supply. Further investigation must be made of insecticides and other chemical substances which have been developed and which are now being used in the processing of food on a commercial scale.

Insulin and Diet. This discussion is based on the view that careful control of the blood sugar is important in the treatment of the diabetic patient. The important aspects of a diabetic diet are outlined, and an illustration is included as to how the diet of an office worker might be calculated. The use of each of the four types of insulin is considered, and the technique of adjusting the patient to diet and insulin is described.

THE JOURNAL OF BIOLOGICAL CHEMISTRY

Vol. 175, September, 1948

*The deposition of uranium in bone: The effect of diet. W. F. Neuman, M. W. Neuman, E. R. Main, and B. J. Mulryan.—p. 715.

Diet and the Disposition of Uranium in Bone. A considerable portion of uranium is deposited in the skeleton and once deposited, little redistribution takes place. Since variations of diet have profound effect in plumbism, it seemed possible that proper diet would enhance mobilization of skeletal uranium. In rats on a rachitogenic diet the removal of skeletal uranium was increased. Acidic and alkaline diets did not significantly alter the normal, slow mobilization process.

THE JOURNAL OF NUTRITION

Vol. 36, August, 1948

*Improving the nutritive value of flour. II. Further studies on the effect of supplementing enriched flour with B-complex vitamins and some observations on the use of 80% extraction flour. B. D. Westerman and F. Templeton.—p. 187.
*The relation of ascorbic acid metabolism in the rat to diets high in protein, carbohydrate or fat. L. T. Samuels.—p. 205.
*The effect of enzymatic hydrolysis on the nutritive value of casein. I. Digestion of casein with pancreatic enzymes. B. F. Chow, J. B. Allison, and J. White.—p. 231.
The effect of enzymatic hydrolysis on the nutritive value of casein. II. Digestion of casein with bacterial and fungal enzymes. B. F. Chow.—p. 239.
*Vitamin studies in middle-aged and old individuals. I. The vitamin A, total carotene and alpha and beta carotene concentrations in plasma. E. Kirk and M. Chieffi.—p. 315.

Nutritive Value of Flour. Experiments have been conducted on albino rats to determine the effect on growth, maintenance, reproduction, and longevity of the use of whole wheat and enriched flour, supplemented with other B-complex vitamins and 80 per cent extraction flour in the diets. Under the conditions of the experiments it was found that the whole wheat and the enriched flour did not support normal growth and reproduction in the rats when included in the diet as sources of the B-complex vitamins, at either the 40 or 60 per cent level. However, the enriched flour in the diet at these levels promoted better growth than the whole wheat. Under the conditions of these experiments the enriched flour supplemented further with the B-vitamins supported better growth, maintenance, reproduction, and length of life than the enriched flour alone. Animals on diets with choline, pyridoxine, calcium pantothenate, and riboflavin added to the enriched flour, and these vitamins plus thiamine produced excellent growth which compared favorably with the average gain made by the animals on the stock diet. None of the animals on the test diets reproduced as well as those on the stock diets. The 80 per cent extraction flour, without enrichment, did not support growth in the rats. When 80 per cent extraction flour was enriched at the same levels as the patent flour, it supported slightly better growth than the enriched patent flour.

Ascorbic Acid Metabolism and Diet. A high-protein diet led to a decrease in the concentration of ascorbic acid in tissues which metabolize considerable amounts of amino acids, such as liver, kidneys, and muscle. The levels in the plasma were also decreased. There was no change in brain or adrenal ascorbic acid concentrations. Adminis-

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The formula for good custard bread pudding used to be: use rich milk, be generous with eggs, and bake slowly.

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No other form of milk can give you the same rich custard bread pudding. Put this Carnation recipe in your permanent file of milk-rich dessert favorites and make it often.

Golden Bread Pudding

1⅔ cups (1 tall can) Carnation Milk
2 eggs, beaten
½ cup sugar
¼ teaspoon salt
¼ teaspoon nutmeg
½ cup raisins
1 cup boiling water
3 slices bread, cubed
1 tablespoon butter

Combine Carnation Milk, eggs, sugar, salt, nutmeg and raisins. Slowly add boiling water. Mix with bread cubes. Pour into buttered baking dish, dot with butter and set in pan of hot water. Bake in moderate oven (350° F.) 45 to 50 minutes, or until set. Serve with your favorite pudding sauce. Yield: 4 large servings.

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Send for your copy of Carnation's "Velvet Blend Book" of milk-rich recipes. If you'd also like a quantity recipe (serving 50) for Golden Bread Pudding, mention it when you write. Dept. 787L, Carnation Company, Oconomowoc, Wisconsin, or Los Angeles 36, California.

tration of ascorbic acid led to an increase in the concentration of ascorbate in the liver, kidneys, and muscle of protein-fed rats, but even doses of 50 mg. a day did not significantly increase the concentration in the plasma. It is thought that the results are best explained by an increased utilization of ascorbic acid in those tissues able to metabolize large amounts of amino acids. The muscle illustrates the changes in a tissue metabolizing both ascorbate and protein, the blood reflects the body balance, and the liver shows the compensating changes of a producing organ.

Enzymatic Hydrolysis and the Nutritive Value of Casein. Processing does at times have a marked effect on the nutritive value of dietary proteins. Heating certain proteins may reduce the nutritive quality, presumably because of the formation of new linkages resistant to enzymatic digestion, whereas, moderate heating of other proteins like soybean may increase the nutritive value presumably through facilitating subsequent liberation of methionine during the digestive process. In this study, casein was hydrolyzed to different degrees through the selective use of pancreatic enzymes under conditions which minimize any destruction of amino acid patterns. It was found that the nitrogen balance indexes and the protein efficiency values of the hydrolysates remained essentially identical with those of the undigested protein.

Vitamin Studies in Middle Aged and Old Individuals. A study was made of the concentrations of plasma vitamin A, total carotene, and alpha and beta carotene in 155 middle aged and old individuals and in forty-seven younger subjects who were offered a diet adequate in vitamin A. The individual values varied greatly, but no statistically significant differences were found between the calculated means of the various age groups. The average concentrations of vitamin A, total carotenes, and alpha and beta carotenes in plasma were 17–23, 200–230, and 100–190 mcg. per 100 cc. of plasma respectively. No certain difference was found between the male and female subjects studied.

SCIENCE

Vol. 108, August 27, 1948

*Ascorbic acid therapy of pteroylglutamic acid-deficient rats. B. C. Johnson and A. S. Dana.—p. 210.

Vol. 108, September 10, 1948

*Does glutamic acid have any effect on learning? E. Stellar and W. D McElroy.—p. 281.

Ascorbic Acid and Pteroylglutamic Acid. A typical pteroylglutamic acid-deficiency syndrome was produced in twenty rats by feeding a synthetic diet containing 2 per cent sulfathalidine or sulfasuxidine. After five weeks, growth ceased; at the end of seven weeks, five rats had died. Many of the surviving animals had a hemorrhagic condition. The leucopenia was effectively treated with ascorbic acid. The application of these findings to the treatment of pernicious anemia and sprue has yet to be investigated.

Glutamic Acid and Learning. Several studies are cited in which doses of glutamic acid or proline were administered to animals and human beings. There is little evidence, at this time, for a facilitating effect of excess glutamic acid feeding on the learning ability of the rat.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 5, August, 1948

Five steps to effective food buying. A. A. Frooman.—p. 29.

Vol. 5, September, 1948

*Satisfactory labor relations. D. E. Dickason.—p. 7.
*Is your food service efficient? A. M. Macfarlane.—p. 25.
Five steps to effective food buying. A. A. Frooman.—p. 30.

Labor Relations. Administrative practices comprising a good employee relations program should include the following: (a) selection, (b) compensation, (c) consideration, (d) participation, (e) information, (f) education, (g) supervision, (h) negotiation, and (i) organization. These points are discussed in some detail and definite suggestions under each point are included. Qualifications of a director of non-academic personnel are also discussed.

Efficient Food Service. Suggestions are given as to how a food service director can make a survey of the efficiency of his operation. A list of items to check and what to look for in each case are: (1) the financial statement, (2) organization, (3) planning, (4) architectural features, (5) personnel, (6) training program, (7) menu planning, (8) purchasing, (9) receiving, (10) storing and issuing, (11) inventory control, (12) production, (13) service, (14) sanitation, and (15) maintenance and repair.

HOSPITALS

Vol. 22, September, 1948

*Procedures and suggestions for a 1949 food budget. M. Gillam.—p. 78.

Planning a Food Budget for 1949. The extent of operational control held by the dietitian determines in large measure the efficiency with which the dietary department functions. But control over the department is difficult unless it is linked with a device for providing this control. That important device is a budget. The procedures for developing a budget, budget items, allocating costs, acquiring facts, anticipating trends, and the step-by-step procedure are contained in this article. A sample budget is also included.

PRACTICAL HOME ECONOMICS

Vol. 16, September, 1948

*Diet after forty. E. Hedgecock.—p. 470.
*School year's resolutions for lunchroom managers. M. L. Cronan.—p. 475.
Comparative costs of frozen, fresh, and canned fruits in salads and desserts. F. Welch and M. Boney.—p. 477.

Vol. 16, October, 1948

A short process for making yeast bread. B. P. Gibson, J. Johnson, and N. K. Fitch.—p. 614.
*The university nutrition class in the community. J. C .Obert and E. S. Rice.—p. 615.
*Valuable school lunch foods from U.S.D.A. C. W. Kallock.—p. 617.

Diet after Forty. Many of the reasons why food habits change in people over forty years of age are presented here. Physiological changes are also described. Food requirements are discussed, and attention is given to conditions resulting in irregularity in dietary habits.

Resolutions for Lunchroom Managers. The following excellent goals are presented for school lunchroom managers to carry out during the school year: (a) balance the budget, (b) minimize food waste, (c) give employees more help, (d) promote student participation, (e) carry on a better nutrition program, and (f) improve public relations.

Community Nutrition. The community nutrition course, given in the School of Home Economics at The Ohio State University is proving most effective. Each member of the class studies the techniques of nutrition education and then has an opportunity to cooperate with some local agency in using those techniques. The various types of projects in which the students have participated are listed.

School Lunch Foods. The distribution of foods by the U. S. Department of Agriculture is of great importance in the operation of the National School Lunch Program. The distribution list for the coming year is discussed.

Citrus Fruits are

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Few foods equal the citrus fruits for their varied store of essential nutrients*—available in such universally appealing form! They are truly "gold mines" of vitamin C—the nutritional factor so vitally important for growing bones and teeth, and for the maintenance of tissue vigor and strength.

And their fruit sugars (for quick energy release), plus other valuable vitamins and minerals—these all typify the healthful, sun-filled goodness that gives them their uniquely important place in meal-planning.

Serve Florida citrus fruits and juices often—fresh or canned—as refreshing and reliable sources of nutritional factors so necessary for the well-balanced diet for young and old.

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FLORIDA

Oranges
Grapefruit
Tangerines
Limes

News Notes

FAO Conference. Fifty-seven member countries of the Food and Agriculture Organization met in Washington, D. C. on November 15 to discuss the problems of food and agriculture. A highlight of the two-week Conference was a study of the world's supply of food and timber, of fertilizers, tractors, and farm equipment. What are these supplies now? What can be done to make them better? How can the nations work together to bring about that expanding economy which many believe is the surest guarantee of world peace and prosperity?

Plenary sessions of the full Conference lasted two days, and then the Conference work was turned over to three Commissions. One commission conducted a full-scale review and analysis of the world situation respecting production, marketing, and consumption of food and agricultural products, including fish and timber. Its purpose was to develop facts and to supply guidance so that planning for increased production can become international. The second Commission reviewed FAO's technical activities during the past twelve months and its program of action for the next year. The third Commission was concerned with constitutional, administrative, and financial questions of FAO itself. These included a budget for 1949, the scale of contributions from members, currency problems, the site of FAO's permanent headquarters, and policies to be followed in developing the organization's relations with the United Nations and its other specialized agencies. This year major changes having to do with FAO's powers or functions were not as pressing as in previous years. Thus delegates gave virtually full attention to specific measures for the improvement of world agriculture.

A.D.A. is proud to have been one of the American organizations invited to send an observer to this Conference. Mrs. Anne Stewart Miller of Washington represented the Association in this capacity, attending the plenary sessions, as well as the meetings of the various Commissions.

National Research Council Meeting. The Food and Nutrition Board of the National Research Council held its thirty-third meeting in Washington, October 29 and 30.

Featured speakers included Dr. Norman Wright of England, current Advisor on Nutrition to the Ministry of Health, and Major General H. M. Whitty, in charge of feeding the British Army. At the dinner meeting, Dr. James McGrath of Newfoundland's Department of Health and Welfare spoke on the nutrition conditions in Newfoundland observed as the results of nutrition surveys made by a group of U. S. physicians and nutritionists during 1944 and again in 1948.

Special subjects of public interest considered by the Board included: (a) recommendations to be made by the Board's representative in the forthcoming Federal Security Agency hearings on definitions and standards for bread; (b) modification of the Food, Drug and Cosmetic Act to the effect that chemicals added to foods during processing should undergo the same rigid tests for non-toxicity as are applied to new drugs and that their additions should improve rather than lessen the nutritional quality of the food product; (c) provision of additional calcium in U. S. diets; and (d) a committee to study anthropometric standards of height-weight in relation to nutritional requirements was proposed and approved.

The Board approved and has ready for publication monographs on dental caries, clinical nutrition, and nutrition surveys. It adopted a resolution favoring federal legislation requiring the iodization of all table salt.

WHO Fellowships. Over 300 specialists in public health and medicine have been given access to recent scientific developments in other countries through WHO's Fellowship Program. Begun by UNRRA, this program was taken over by the Interim Commission of WHO early in 1947 and has since been expanding. In the future, WHO fellowship grants will be extended to member countries in need of aid. The exchange fellows are for the most part medical experts, university professors, and public health specialists who can contribute to the development of scientific research, both within and outside their countries. WHO fellowships are being awarded in nursing, occupational therapy, midwifery, and sanitary engineering as well as in such fields as psychiatry, surgery, pediatrics, and cancerology.

. . . . .

Plans are now being made for the establishment of the first regional office of the WHO. It will be located in Southeast Asia. In the Americas, too, a regional office is being planned. At the October meeting of the Pan American Sanitary Organization a resolution recommended acceptance of an agreement with WHO for use of the PASO as regional headquarters of WHO.

Research Clearing House. A clearing house for research in child life has recently been established in the Children's Bureau as an aid to research workers in keeping up with the studies in progress. The clearing house has been set up in response to numerous requests from research workers and professional organizations who believe that such a center will promote collaboration and interchange of information on current research in the various fields affecting child life. Also available at the clearing house will be the collections of unpublished data and reports of investigators' work now in progress.

Chicago Diabetes Association. Fifteen physicians and five other persons met on October 29 in Chicago to form the Chicago Diabetes Association. Dr. Arthur R. Colwell of Evanston Hospital is the President; Dr. Samuel Soskin, of Michael Reese Hospital is Vice-President, and Paul Dice of the Northern Trust Company is Treasurer. Barbara Ruby, Dietitian in the Nutrition Clinic, University of Chicago Clinics, has also been appointed to the new organization's Executive Board as a representative of the Chicago Dietetic Association.

Dietetic Interns Graduate. On September 22, a graduation dinner for dietetic interns at the *University of Oregon Medical School Hospitals and Clinics* was held at Doernbecher Hospital. Interns who began their training in July, 1948 served as hostesses. Chidwah Van Tijn, Nutrition Consultant of the State Board of Health, was introduced to the graduating interns and gave a brief summary of work. School pins and certificates were awarded to Donna Brunner, Marymount College; Rosalyn Brehmer, Michigan State College; Jessie Jane Gibbons, University of Utah; and Shirley Allison Leach, University of British Columbia.

Seven outgoing interns have recently completed their course at the *Women's Educational and Industrial Union* of the Harvard University School of Public Health, Boston. The interns are: Maxine Burch, Mary Lou Dorflinger, Mary Lou Harman, Anna Logan, Margaret Spaulding, Marion Galster, and Selma Moss.

Dietetic Interns Attend Clinical Conference. The dietetic interns at the University of Kansas Medical Center attended the Kansas City Southwest Clinical Society Conference held on October 4 to 10. Some of the meetings and speakers which were of particular interest were as follows:

"Diagnosis of Anemia" by Dr. William

"OUR *GAS* COOKING EQUIPMENT has contributed materially to increased efficiency in the kitchen."

N. E. Hanshus, Manager
Luther Hospital
Eau Claire, Wisconsin

Aerial view of Luther Hospital, Eau Claire, Wisconsin

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Demeshek, Tufts College Medical School, Boston
"Hypertensive Heart Disease," by Dr. J. V. Bell, Kansas City
"Minimum Requirements in the Diagnosis of Food Allergy" by Dr. Herbert J. Rinkel, Kansas City
"Food Eczema in Adults" by Dr. David Morgan, Kansas City
"Treatment of Portal Hypertension" by Dr. George Crile, Jr., Cleveland Clinic Foundation Hospital
"Arteriosclerosis and Diabetes" by Dr. Eldon S. Miller, Kansas City
"The Feeding and Care of the Premature Infant in the General Hospital" by Dr. Donald N. Medearis, Kansas City
"Recent Advances in the Clinical Picture of Rheumatic Fever" by Dr. Ignacio Chaves, National University of Mexico
"Differential Diagnosis and Treatment of Hepatitis" by Dr. W. A. Sodeman, Tulane University, New Orleans

Food and Container Institute Appointments. The Quartermaster Food and Container Institute for the Armed Forces has announced the following staff appointments: Dr. George H. Berryman has been named head of the Nutrition Branch of the Institute. Dr. Berryman will direct basic research on nutritional aspects of foods and rations used by the Armed Forces or used for feeding programs in other parts of the world. Jack Mayer, food technologist specializing in seafood products, has been assigned to the Animal Products Branch of the Institute. Dr. Harry Spector has joined the research staff and is responsible for conducting research and development necessary to the preparation of specifications for foods, rations, and containers supplied to the Armed Forces. Dr. Keith T. Swartz, research specialist on canned foods, has joined the staff of the Animal Products Branch. Dr. Swartz will be engaged in developmental work on canned meat items used by the Armed Forces.

Book on Hospital Planning. A new book for hospital administrators, building committee chairmen, and architects entitled, *Transcript of the Institute On Hospital Planning* has been published by the American Hospital Association. Copies may be purchased for $5 from the American Hospital Association.

Report on Family Life Conference. "Highlights of the National Conference On Family Life," is the title of a pamphlet recently issued as a report on the National Conference on Family Life held in Washington, D. C., May 5 to 8. Copies may be purchased for 15 cents each or for 10 cents a copy if 100 or more copies are ordered. Write to the National Conference on Family Life, 10 E. 40th Street, New York 16.

National Health Assembly Report. *The Nation's Health, A Ten-Year Program* by Oscar R. Ewing, Federal Security Administrator, is the report of the National Health Assembly which outlines a ten-year health program for the country. It is now available in paperbound, book form from the U. S. Government Printing Office, Washington 25, D. C. The price is $1.

School Lunch Booklet. *Lunch at School* is the title of a new booklet published by the Association for Childhood Education. This bulletin has been prepared for parents, teachers, and administrators in the elementary school. The purpose is to emphasize the importance of the school lunch program and to encourage its improvement and development as an educational and nutritional experience for children. School lunch managers may wish to make this bulletin known to principals and teachers. It can be obtained from the Association for Childhood Education, 1200 Fifteenth St., N.W., Washington 5, D. C., for 50 cents a copy.

Recent Government Publications. "Chicken in the Freezer" (AIS 74, 1948), an illustrated folder prepared in the Bureau of Human Nutrition and Home Economics, gives directions for freezing and stewing younger birds.

A new color chart "Know the Eggs You Buy," issued by the Production and Marketing Administration, USDA, features three consumer guides for buying eggs—read the label, consider weight, and consider quality. Both of the above publications are now available free from the PMA Information Branch, USDA, Washington 25, D. C.

The Department of Labor has recently issued a pamphlet *Butch Looks to You—Your Supervisors Know Safety Speeds Production.* Although this pamphlet was published primarily for use in heavy-machinery industries, many of its suggestions are applicable to other fields. It may be purchased for 10 cents per copy in quantity orders from the U. S. Government Printing Office. It is pamphlet No. 97 of the Department of Labor. A limited supply of free copies is available, however.

New Films. The *Poultry and Egg National Board* has recently completed a new 35 mm. color slide film, "How to Cook Turkey." The running time of the film is approximately 25 min. Slides portray the correct method of preparing and serving whole, half, quarter, and by-the-piece turkey. The film points out the nutritional value of turkey, includes directions for good turkey gravy, a display of appropriate garnishes, and shows—step by step—an easy, side-method of carving. A booklet, which accompanies the film, supplies supplementary information and is an additional teaching aid. "How to Cook Turkey" may be obtained on a loan basis from the Poultry and Egg National Board, Chicago.

A new 10-min. motion picture with health and nutrition as its central theme has been released by the *Princeton Film Center.* Titled "The Story of Human Energy," it is a 16mm. sound production which provides both color and animation. Production has been geared to use of the film by all age levels. The film tells of the part that dextrose plays in the daily diet of mankind. It illustrates how energy is stored in various kinds of food by sunlight and shows what this process of nature means in assuring good health. A band of genial energetic little men illustrate the various steps of photosynthesis, the process in which sunlight injects carbohydrates into plant leaves. Through the cooperation of the Corn Products Company, prints of the film may be borrowed without cost other than return transportation, by writing the Princeton Film Center, Princeton, New Jersey.

The second edition of *Approved Films on Food and Nutrition* prepared by the New York City Food and Nutrition Committee reviews ninety-nine films with suggestions for appropriate use. It may be obtained for 75 cents a copy from the Health Council of Greater New York, 137 Centre Street, New York 13.

Booklet on Picnic Cookery. *Nothing More Fun Than Eating Outdoors* is a cleverly illustrated booklet of recipes for picnics in the woods, parks, beaches, and even in your own backyards. The booklet was prepared by the Director of Camping, Division of Programs, Chicago Council, Boy Scouts of America.

Apple Juice for Infant Formula. The Virginia Experiment Station reports that its scientists have found that concentrated apple juice may be used successfully for infant formula. When added to cow's milk, it forms soft curds recommended for digestibility. Human milk forms a soft, almost fluid curd in the stomach whereas untreated cow's milk tends to form a medium-tough, compact mass. Through the years various methods have been used to modify cow's milk for infant feeding. The mild acid in the apple juice puts the milk in soft-curd form, and its pectin is an additional advantage. The concentrated juice mixes well with milk, the scientists say, and gives a palatable product. They recommend one part of the juice to fifteen parts milk for the right sugar concentration. When boiled or evaporated milk is used, the mixture recommended is about one part juice to nineteen parts milk.

Thiamine in Bread and Rolls. Home made bread and rolls baked quickly until medium brown hold more thiamine than do bread and rolls baked slowly until dark brown, reports the New York State Experiment Station at Cornell University, Ithaca. Tests also showed that rolls retain more thiamine during baking than bread, probably because they can be baked in half time. The tests indicated that a large proportion of the thiamine added in flour enrichment may be retained in yeast breads, and that baking time and temperature appear to be most important in saving it. Bread baked 40 min. at 400°F. retained the most thiamine. More was lost when bread was baked more slowly. Whether bread was mixed by the sponge-dough or the straight-dough method made only slight difference in the thiamine retention. The number of times the dough was raised also had little effect on the thiamine. In rolls, the study showed that those with the least crust held thiamine

the best. As bread and rolls were baked to a darker crust, more thiamine was lost.

Potato Cookery. Surveys show that women peel and slice potatoes before cooking, throw away the water, and thus discard food value that can be retained by boiling potatoes in their skins. A recent survey of rural women in parts of California, Nebraska, and Rhode Island provides some information about American cooking habits. It was conducted by the Bureau of Human Nutrition and Home Economics, in cooperation with the agricultural experiment stations in three states. The women themselves—75 per cent in California, 80 per cent in Nebraska, and 24 per cent in Rhode Island—said they peel and cut potatoes before cooking. Others peel the potatoes and leave them whole. But only 15 per cent of the California women, 6 per cent in Nebraska, and 21 per cent in Rhode Island said they boil potatoes in their jackets. The Bureau's research on cooking and analyzing of foods shows that potatoes boiled whole in their skins retain practically all of their ascorbic acid and thiamine. On the other hand, potatoes peeled before boiling lose 20 to 30 per cent of their ascorbic acid and some thiamine as well. Peeling after cooking is a quick task, and mashed potatoes prepared from potatoes that had just been boiled in skins, the specialists found, retained most of their nutritive value. If cooked potatoes are to be held in the refrigerator, they will lose additional ascorbic acid, but keeping their jackets on helps to retain this vitamin.

News of State Associations

Florida Dietetic Association. The Ponte Verda Club at Ponte Verda Beach, Florida, was the scene of the thirteenth annual meeting of the Florida Dietetic Association on October 29 and 30, 1948. Among the talks given were "An Educator Looks at the Dietitian" by Dr. J. Bernhard Culpepper, Dean of Student Welfare, Florida State University; and "New Advances in Nutrition" by Dr. Walter Wilkins, Dr. Roy E. Butler, and Dr. E. J. Lease. Discussions were also held on: "Public Relations and You," "Modern Kitchen Equipment," and "Production, Distribution, and Use of Florida Foods."

Iowa Dietetic Association. Officers of the Iowa Dietetic Association for 1948–49 are: President, Beatrice Donaldson, Iowa State College, Ames; President-Elect, May Morris, Veterans Administration Hospital, Des Moines; Vice-President, Helen Goodenow, Currier Hall, University of Iowa, Iowa City; Secretary, Sister Grace Marie, Sacred Heart Hospital, Le Mars; and Treasurer, Mary June Carter, Children's Hospital, State University of Iowa, Iowa City.

Kansas Dietetic Association. In November, in Manhattan, Kansas, the Kansas Dietetic Association heard reports of the A.D.A. convention in Boston, and new officers were installed. The luncheon speaker, Mary Smull, gave an address entitled "Time and Motion of Your Employee." Miss Smull is a professor in the Department of Institution Management, Kansas State College. Following the luncheon, there was a tour of residence halls, cafeterias, and the new home management house of the College.

The *Kansas City Dietetic Association* is planning a yearly program of workshops to consider worthwhile local projects and problems. There will be participation by members on topics of special interest to them, namely, administration, therapeutics, and education. At the October meeting, a student nurse from the pediatric nursing service of the University of Kansas Medical Center demonstrated the method used in training the mother for formula making in the home. The pediatric nurses at the Medical Center are trained by the Dietary Department to teach mothers a method of terminal sterilization comparable to that used in the milk laboratory. The folder describing the procedure which is given to each mother at the time of the demonstration, was prepared by the Diet Therapy Section of the Kansas Dietetic Association.

Michigan Dietetic Association. The Michigan Dietetic Association held a two-day meeting in Battle Creek on November 5 and 6. Among the speakers were: Margaret L. Mitchell, Vice-President of Food Production, Stouffer's Restaurants, Cleveland, who discussed, "Achieving Quality Food Production and Service in Today's Institutional Kitchen"; Mary Harrington, Director of Dietetics, Harper Hospital, Detroit, who talked on "Which Duties Should a Dietitian Properly Delegate to Others?"; Margaret King, who spoke on the "Present Status of the Dietetic Intern Courses"; and Dr. Dena Cederquist of Michigan State College who discussed "Recent Developments in Nutrition and Diet Therapy." Other subjects discussed included high labor costs, food allergens, news in the field of administration, public relations, new equipment vs. repairing old material, and lowering the high food costs.

New Jersey Dietetic Association. At the sixteenth annual fall meeting of the New Jersey Dietetic Association held on November 2 at New Jersey College for Women, the following officers for 1948–49 were elected: President-Elect, Elizabeth McHugh, Nutritionist, American Red Cross, East Orange; Vice-President, Elaine Loseke, Chief Dietitian, Patterson General Hospital, Patterson; Secretary, Sonya Fast, Newark Beth Israel Hospital; and Treasurer, Gertrude Isserman, Beth Israel Hospital, Newark.

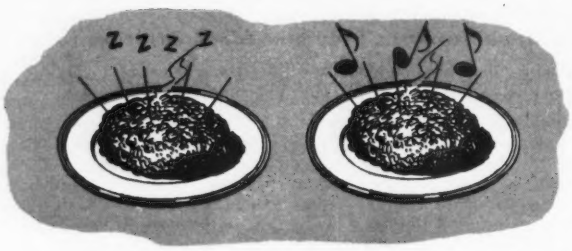
New Appointments, Veterans Administration

The following hospital appointments of dietitians (not previously announced) have been made by the Veterans Administration:

Name	Position	Location
	Branch No. 1	
Doris Syverston	Staff Dietitian	Framingham, Mass.
	Branch No. 2	
Rubye Jones	Staff Dietitian	Northport, N. Y.
Anna L. Preston	Staff Dietitian	Northport, N. Y.
	Branch No. 3	
Mary Kozeff	Staff Dietitian	Lyons, N. J.
	Branch No. 4	
Betty C. Douglass	Staff Dietitian	Roanoke, Va.
Clarabel Graham	Staff Dietitian	Richmond, Va.
Elizabeth Kimbrough	Staff Dietitian	Richmond, Va.
Genevieve F. Mullin	Staff Dietitian	Ft. Howard, Md.
	Branch No. 5	
Barbara Bartlett	Staff Dietitian	Chamblee, Ga.
Amanda Cayce	Staff Dietitian	Nashville, Tenn.
Luceil Messersmith Dunbar	Head Dietitian	Augusta, Ga.
Maude Ethel Harrod	Staff Dietitian	Columbia, S. C.
Comer Hymes	Staff Dietitian	Chamblee, Ga.
Virginia Jolley	Staff Dietitian	Dublin, Ga.
Lorene A. McFillin	Head Dietitian	Montgomery, Ala.
Mary Ora Pitt	Staff Dietitian	Memphis, Tenn.
	Branch No. 6	
Lois A. Knowlton	Head Dietitian	Ft. Custer, Mich.
Eileen H. Molyneux	Staff Dietitian	Cleveland, Ohio
Margaret I. Ratcliff	Staff Dietitian	Louisville, Ky.
Beverly VanDeventer	Staff Dietitian	Ft. Custer, Mich.
	Branch No. 7	
Pauline Anderson	Staff Dietitian	Hines, Ill.
	Branch No. 8	
Myrna Viola Hallman	Staff Dietitian	St. Cloud, Minn.
Betty Jean Smith	Staff Dietitian	Minneapolis, Minn.
	Branch No. 9	
Phyllis Benefiel	Staff Dietitian	Excelsior Springs, Mo.
JoAnn Jorden	Staff Dietitian	Wadsworth, Kans.
	Branch No. 10	
Helen Marie Dreyer	Staff Dietitian	Temple, Tex.
Virginia C. Magliolo	Staff Dietitian	Dallas, Tex.
Frances Mangold	Staff Dietitian	McKinney, Tex.
	Branch No. 12	
Mary V. Garland	Staff Dietitian	Whipple, Ariz.

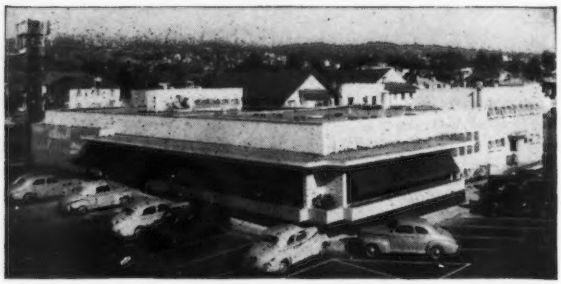
Just try it Ac'cent makes

More and more dietitians are trying Ac'cent in the preparation of nutritious dishes. They are finding that this wholesome derivative of vegetable protein really heightens flavors that make food enjoyable. Try this simple "test" and see for yourself.



Take two hamburger patties. Spread ¼ teaspoon of Ac'cent over one patty 10 minutes before cooking. Cook both patties seasoned exactly as usual. Now taste the *difference*. You'll be surprised at the natural flavor richness and the delicious juices in the hamburger cooked with Ac'cent.

NOTE: *Of course, in larger quantity cooking, the amount of Ac'cent you use will be considerably less in proportion.*



PLAND'S-BROADWAY, bustling, agreeable restaurant at the busy intersection of MacArthur Boulevard and Broadway in Oakland, California, prides itself on its distinctive foods and its large clientele of both tourists and natives. This comment by Mike Lynn, manager, is interesting.

"We try to serve our dishes with their own natural flavors. We find that Ac'cent increases the appeal of our food without adding a flavor of its own. For the past 18 months we have been using Ac'cent in our soups, gravies, sauces, and many other dishes."

★ ★ ★

MR. JACK BECK of Bick's Food Stores, San Jose, California, agrees on the wonderful effect which Ac'cent has on food flavors. Mr. Beck says:

"We have found Ac'cent a wonderful help in our food preparation. Our main specialties are chicken and turkey pie, and we use Ac'cent regularly in the gravies. We have also started using Ac'cent in many other ways and have had happy results with it in almost all the hot or warm dishes we serve."

and you'll agree...

food flavors sing

Not a flavoring!
Not a condiment!
Not an ordinary seasoning!

Ac'cent is *MONO SODIUM GLUTAMATE* . . . over 99% pure, unadulterated, sparkling-white crystals. It is a natural, *not* a "synthetic" product. It is the sodium salt of the amino acid—*glutamic* acid, which occurs naturally in all vegetable and animal protein. Ac'cent is wholesome and good—a product of nature.

Ac'cent brings out NATURAL flavors. The flavor you get when Ac'cent is added is the true *natural* flavor of the food emphasized. There's nothing artificial about Ac'cent itself or in its effect on food.

Ac'cent adds no flavor of its own. Different from any seasoning you have ever used, Ac'cent puts in no new taste or aroma or color. It develops good flavors that are there . . . makes them *sing*.

Use your own recipes. No need to change a single pinch in your *regular recipes* when you use Ac'cent. Salt as you always salt. Pepper as you prefer. Flavor as you always flavor. Ac'cent magically rounds out the *total* flavor of *your recipe!*

Ac'cent makes food flavors sing

in places you've heard of... for people you know

PAN AMERICAN WORLD AIRWAYS, the pioneer international airline, has an especially difficult food problem to which Ac'cent helps contribute a solution.

Rowland H. Bacon, Latin American Division Commissary Superintendent, says:

"We have used Ac'cent in PAA Flight Kitchens and PAA Guest Houses for over a year. In Flight Kitchens we find that by sprinkling a small amount of Ac'cent over cooked food just before placing in the hot food containers used aboard planes the flavor of the food is enhanced, even though five to six hours may elapse between preparation on the ground and service aloft."

Wherever you live, if you read the *New Yorker*, you know "O'BRIEN'S OF SAN JOSE" and their chatty, entertaining advertisements. In addition to their famous line of confections, O'Brien's operates a dining room and an extensive catering service. Karl H. Goebel, food manager, says:

"Ac'cent is to us a valuable friend. It occupies an important place in our kitchen. With it, our soups and gravies keep winning new patrons—and compliments from our customers. Ac'cent is wonderful for building up flavors. The natural flavor of fowl, for instance, is enhanced and strengthened when Ac'cent is used."

In its modern, sunlit commissary, CEASE, caterer of Dunkirk, New York, prepares good food in amazing variety and large quantities for many cafeterias of big industrial concerns throughout the Buffalo-Niagara Falls area. Says Mr. W. W. Cease, President:

"After many tests we are convinced of the advantage of using Ac'cent to improve flavor. We use it in such items as Salisbury steak, brown gravy, chicken broth, chicken and vegetable pie, New England beef stew, and clam chowder."

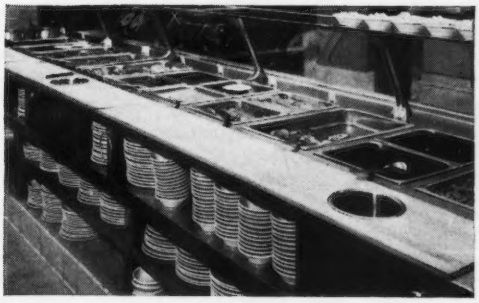
CEASE'S famous Brown Beef Stew *is braised to a golden brown in specially-made aluminum pans. As the meat is braised, it is seasoned with salt, pepper . . . and AC'CENT.*

The makers of Ac'cent
appreciate very much the
many expressions of keen interest
voiced by dietitians
who visited their booth
at the American Dietetic Association
Convention in Boston
and experienced there
the effect of Ac'cent in soup

The dietitian... and patients' wan appetites

Probably some patients can never be induced to eat as well as you'd like them to . . . but the fuller, richer flavors brought out in foods prepared with Ac'cent will go far to tempt lagging appetites. The simplest foods—and many of the bland diets which patients find "monotonous"—have within themselves an extra quality of flavor which even skilled preparation seldom brings out. Ac'cent draws out, emboldens these subtle, natural flavors.

The effect of Ac'cent in making foods more enjoyable is explained by scientists in this way: Ac'cent, they say, unlike any seasoning known, stimulates the taste buds to a quick, intense, and *sustained* enjoyment of food flavors. In this respect, Ac'cent appears to be unique.



JUST SEE HOW AC'CENT COMBATS "STEAM TABLE FATIGUE". Ac'cent helps keep flavors fresher through the minutes and hours of waiting and serving . . . brings to the table the full, delicious flavors that were in the foods when they were prepared in the kitchen. Ac'cent is effective in *restoring* flavors in left-overs. Cooked vegetables too keep their fresh taste longer when Ac'cent is used in their preparation.

Ac'cent makes food flavors sing

You can get Ac'cent in 1-pound cans, 10-pound cans, and 100-pound drums. If your jobber does not yet have Ac'cent, use the coupon below for a trial pound canister or ask for the free sample packet, enough to make several convincing tests.

MAIL THIS COUPON TODAY

Amino Products

Division International Minerals & Chemical Corporation
General Offices:
20 N. Wacker Drive, Chicago 6, Illinois
New York City Office: 61 Broadway

Amino Products, Division International Minerals and Chemical Corporation
20 North Wacker Drive, Chicago 6, Illinois

Please send me a trial canister (1 pound) of Ac'cent . . @$2.50.

☐ ship direct to me, check attached. ☐ deliver and invoice through my jobber.

JOBBER'S NAME.....

JOBBER'S ADDRESS.....

☐ Please send me a Free sample packet of Ac'cent.

MY NAME.....

MY ADDRESS.....

Oklahoma Dietetic Association. Oklahoma dietitians held their annual fall business meeting at Oklahoma City at the Skirvin Hotel on October 30, 1948. At the buffet dinner Louise Mason gave a European travelogue.

Pennsylvania Dietetic Association. On Tuesday October 12, the regular meeting of the *Philadelphia Dietetic Association* was held at the Pennsylvania Hospital. It was voted that the Association contribute its regular yearly donation of $100 to the Community Chest, $25 to the American Red Cross, and $10 to the Salvation Army. Dr. Winslow Tompkins lectured on "Diet in Maternal Health" after the business meeting. At the Pennsylvania Lying-In Hospital, Dr. Tompkins and his associates are conducting a five-year research program on the effect of diet on the mother and the offspring.

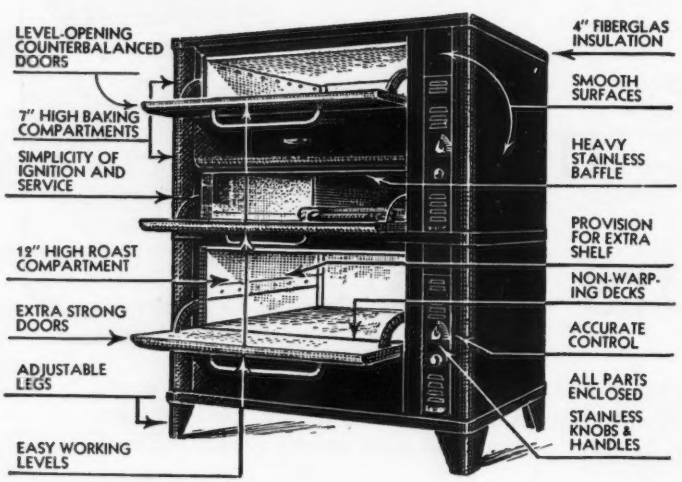
Washington State Dietetic Association. The dietitians of the State of Washington launched their program of work for the year at a conference held November 5 and 6 in Seattle. The first session of the meeting emphasized administration. C. H. Robinson spoke on "Electronics in the Kitchen" and Emmet Blair presented the subject, "Dishwashing Equipment." Another session included papers on nutrition and diet therapy. Dr. R. H. Williams, University of Washington Medical School, spoke on "Obesity"; Dr. Thomas Carlile and Dr. C. C. Pearson, both of the Virginia Mason Hospital, discussed "Clinical Use of Radioactive Isotopes" and "Colitis," respectively. On the program of the meeting the second day were Dr. Cedric Northrop, Department of Health, State of Washington, who spoke on "Tuberculosis Control in Washington and the Dietitian's Part;" Grace Ferguson, whose topic was "Interviewing the Patient"; and Clara Hartnett, who discussed "Techniques of Teaching." Mary Louise Johnson, Instructor, University of Washington, reviewed books at this meeting. The officers for 1948–49 are: President, Clara B. Tavis; President-Elect, Mildred Bonnell, Vice-President, Selma Streit; Secretary, Doris Williams; Treasurer, Dorothy Eicher.

Wisconsin Dietetic Association. At its November meeting, the *Milwaukee Dietetic Association* was hostess to the Milwaukee Home Economics Teachers Association and the Suburban Home Economics Teachers Association. A. J. Sokolnicki, Supervisor, Speech Clinic and Hearing Laboratory, Marquette University, discussed the correlation of nutrition and speech defects, explaining the help teachers, dietitians, and nutritionists might offer as individuals.

At the December meeting of the Milwaukee Association, Dr. Gilbert J. Rich, Director, Milwaukee Guidance Clinics, will be guest speaker, reporting on the meeting of the International Orth-Psychiatric Society held in Europe this summer.

BLODGETT GAS FIRED OVENS
BAKING — ROASTING — COOKING
HAVE A
BIG LIST OF FEATURES!

THE POPULAR No. 959
One of 22 models in standard black or all-Monel metal, for all types of gases.



SECTIONAL CONSTRUCTION
Blodgett's "BASIC THREE" sections provide twenty-two oven models, from which to "tailor-make" your requirements for bakery, pastry shop, roasting and cooking operations. Sectional construction also assures fast heating, even heat distribution, accurate control and flexibility. Close control of temperature and generous compartment size assure high production.

ONE HUNDRED YEARS OF
THE G. S. BLODGETT CO., INC.
OVENS
50 LAKESIDE AVE., BURLINGTON, VERMONT

Association Activities

New A.D.A. Exhibit. *Dietetics . . . the career with a choice* is the subject of the new A.D.A. exhibit which was on display for the first time at the 31st Annual Meeting in Boston. Revolving Kodachrome slides portray the various activities of a dietitian. Prepared under the direction of the A.D.A. Vocational Guidance Committee and the Educational Exhibits Committee, there are fourteen slides. Nine illustrate the work carried on by the hospital dietitian, and five show typical activities of the clinic dietitian, the dietitian in a test kitchen, the food editor, the dietitian directing a school lunch program, and the dietitian in industry. For each picture there is an accompanying slide bearing a caption describing the situation. The projector used in the exhibit is equipped to show thirty pictures in sequence. Also part of this exhibit is a large, stationary, colored photograph—a translight—which shows a hospital dietitian at the bedside of a young patient who has just been served his tray. This picture is placed above the revolving Kodachromes. From time to time additional slides will be made to show further activities of dietitians. All slides will be made available to the state and local associations wishing to use them in their public relations and vocational guidance programs. Copies of the present set of slides will be available for loan from the Association office about December 15. The only charge for their use will be the cost of shipping.

Dietetics on Television. On September 20, as part of a series sponsored by Women's Medical Specialist Corps, dietetics was spotlighted on television station WBKB, Chicago. Marion Straube, of the Nutrition Clinic, University of Chicago Clinics, gave a demonstration of a well-balanced diet, using a wheel based on the idea of the Basic Seven.

BY Mary I. Barber OF KELLOGG'S

ALL THESE HOLIDAY TREATS FROM ONE SUPER-RECIPE!

Director, Home Economics Department
Kellogg Company
Battle Creek, Michigan

A SUPER-RECIPE? Yes, indeed! We call it that because with a twist of the mixing spoon (or a chop of a cookie cutter) your cooks can shape the mixture into dessert... candy... or holiday tray favors to suit the season. For example, stars for Christmas! Hearts for St. Valentine's Day! Rabbits for Easter!

These novel shapes give patients something to think about and talk about. They're truly conversation pieces, food for fun! And so light and wholesome practically everyone can enjoy them!

ECONOMICAL! QUICK!

Rice Krispies Marshmallow Squares are a very practical treat to serve in an institution. They're low in labor cost (something to think about these days!) And quite low in cost per serving. Surprisingly so for such a delicious treat!

RICE KRISPIES ARE THE SECRET!

Rice Krispies—the same cereal that goes snap-crackle-pop in milk—gives these treats their crunchiness! Their grand toasted taste! And much of their good nutrition. For Rice Krispies are a worth-while source of energy and good cereal nourishment.

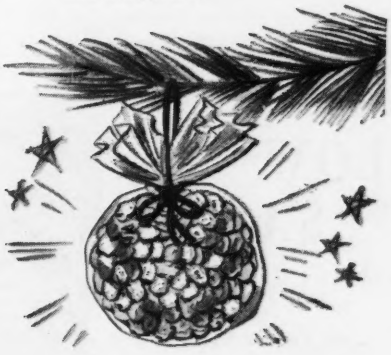
In fact, all the well-loved line of Kellogg ready-to-eat cereals either are made from the whole grain or are restored to whole grain values of thiamine, niacin and iron.

Mary I. Barber, DIRECTOR
HOME ECONOMICS DEPARTMENT

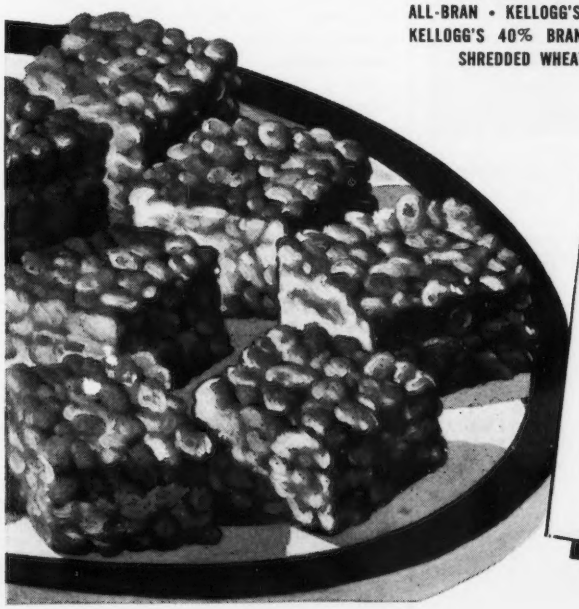
Kellogg's

KELLOGG'S CORN FLAKES • RICE KRISPIES • PEP
ALL-BRAN • KELLOGG'S RAISIN BRAN FLAKES •
KELLOGG'S 40% BRAN FLAKES • KELLOGG'S
SHREDDED WHEAT • KRUMBLES

For Santa's little friends! *Top squares with scoops of ice cream. Add cherry sauce if desired. Light and wholesome!*



Good-looking, good-eating Christmas tree balls! *Shape warm mixture quickly into balls. Wrap in red and green cellophane. Hang on tree or use as favors.*



RICE KRISPIES MARSHMALLOW SQUARES

Ingredients	*48 2-inch squares (1 pan 15x13 inches)*	*192 2-inch squares (4 pans 15x13 inches)*
Butter or Margarine	½ cup (4 oz.)	1 pound
Marshmallows	1 pound	4 pounds
Vanilla	1 teaspoon	1 tablespoon
Kellogg's Rice Krispies	2¾ quarts (11 oz.)	2 lbs. 12 oz.

1. Cook butter and marshmallows over hot water until thick and syrupy. Add vanilla and beat thoroughly.
2. Put Rice Krispies in greased large bowl and add marshmallow mixture, stirring briskly.
3. Press into greased shallow pans to ½-inch thickness. Cut into squares or fancy shapes when cool and hardened.

News of Advertisers and Exhibitors

S. Blickman, Inc., manufacturer of food service equipment, has prepared a new bulletin describing twelve new models of popular-priced standard steam tables for gas or electric heat. The tables described have the following features: stainless steel top and covers; inset covers with beaded ladle cutout; extra strong stainless steel top construction with underneath bracing; seamless, crevice-free surfaces; reinforced top opening; hardwood carving board; welded understructures; heavy copper water pan; and flanged feet on all open-base tables.

Employees of *Standard Brands* who have been with the company twenty-five years and longer are now members of a newly organized "Quarter Century Club" and have been honored at inaugural dinners in New York and eleven other cities. The more than 900 employees who were eligible for induction into this group also received engraved watches in recognition of their loyal service.

"Junket" Brand Foods has recently prepared a thirty-two-page booklet, *The Importance of Rennet in Infant and Adult Nutrition*, which deals with physiologic role and therapeutic usefulness of the proteolytic enzyme rennin.

The H. J. Heinz Company has prepared a new school lunch menu planner. It is an 11 by 14 in. scratch pad containing twenty-four work sheets. Twenty pages are ruled into rectangles in which the person making menus may jot down on each page a day's lunch plan for a period of two weeks. Thus it is possible to record menus for forty weeks, the average school year. The planner also offers 340 economical recipes for quantity serving.

General Foods Corporation has announced that the newest member of the family of Jell-O and Jell-O puddings is Jell-O Rice Pudding, which is now being sold in grocery stores throughout the East and Middle West. The new pudding is quick and easy to prepare: add milk, boil 10 min., and a rich creamy, rice pudding results. Many varieties of rice pudding combinations can be made, including raisin, chocolate, spice, meringue, cocoa, and the like.

A new product called "4-in-1 Sweet Cocoa Mix" has been placed on the market by the *Walter Baker Company*, a division of *General Foods*. Instant cocoa, chocolate milk shakes, frosting, fudge, and chocolate sauce can be made from the new cocoa mix.

General Foods Corporation has announced the preparation of the first assortment of recipes prepared in its new Institution Kitchen. Tested recipes have been compiled for lemon pudding, black bottom pie, apple or peach coffee cake, jellied peaches and cheese, and medallion sugar cookies. The recipes are on 4 by 5¾ cards and list the quantities needed for serving up to 139 servings. On the back of the card is a small record chart where the cost and size of the portions served may be recorded.

A *General Foods* family-size recipe book has been released—"Miracles with Minute Tapioca." There are new recipes for pies and tarts, fruit tapiocas, baked puddings, savory soups, souffles, and meat loaves and casseroles.

Pfaelzer Brothers, has announced the acquisition of the plant and facilities of the American Meat Company in Kansas City, Missouri. The new plant will operate independently from Kansas City as the American Meat Corporation.

Pfaelzer Brothers, Inc. have released a new "Market Guide and Price List." The booklet lists smoked meats; buffet meats; sausages; beef, lamb, pork and veal cuts; ground meats; cut steaks; chops and cutlets; and poultry, including chickens, ducks, capons, game birds, squabs, and Guinea hens. Each cut of meat is pictured and described by weight and type, and space is allowed for the buyer to insert current prices per pound. Cheeses for hot dishes, sandwiches, and desserts are listed.

The National Dairy Council has recently prepared a leaflet entitled "Glances at Butter Research." The leaflet discusses research developments which have discovered a new growth factor identified by some investigators as vaccenic acid; increased growth in rats which is attributed to factors in "summer butter"; effect on the synthesis of vitamins by microorganisms in the intestinal tract by butterfat which increases the storage of vitamin A in the livers of animals; and research in progress which concerns the role of butterfat itself in human nutrition.

National Dairy Council has also produced a new film called "Whenever You Eat." The picture, a one-reel, 16 mm. sound motion picture in color, runs approximately 12 min. The film demonstrates that health is important in the realization of any chosen vocation and that proper food habits are essential; shows foods that are important in good food selection; describes the contributions of dairy products to adequate meals; and illustrates the appeal of color in meals.

Edward Don and Company opened new permanent exhibition sales and display rooms at 2201 South LaSalle Street in Chicago on October 18.

Calgon, Inc., has announced the appointment of Dorothy Darragh as Director of Home Economics. The Home Economics Department will provide a closer liaison with housewives, training directors, home economists, publications, manufacturers, and government service by providing information regarding the use of Calgon, Calgonite, and other products for household service.

Wyandotte Chemicals Corporation has announced the acquisition of the manufacturing facilities and clay deposits of Blue Mountain Clay Company, Inc., producers of Wyandotte Zorball—an all-purpose oil-and-water floor absorbent.

FOR THE

LOW SALT DIET

Cellu Canned Vegetables and Vegetable Purees. Packed Without Sugar, Salt, or Other Seasoning

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

17 Popular Vegetables and Purees Available

For cardiac patients, and others on sodium-restricted and salt-restricted diets. Cellu Canned Vegetables and Cellu Purees are packed without any added seasoning—condiments are easily added if conditions permit. Use Cellu Canned Vegetables and Purees to add variety to restricted diets. . . Corn, Asparagus Tips, Tiny Beets, Stringless Beans, Pureed String Beans, Carrots, and Peas, and ten other favorites to choose from. Food values printed on the label for convenience in planning diet meals.

Send for FREE CATALOG of Cellu Dietary Foods

CELLU PURPOSEFULLY PREPARED *Dietary Foods*

CHICAGO DIETETIC SUPPLY HOUSE Inc.
1750 West Van Buren Street Chicago 12, Illinois

UNSALTED TOMATO JUICE

For a special treat, serve Cellu Tomato Juice. As tasty and refreshing as ripe, garden-fresh tomatoes. No seasoning added.

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The following abbreviations indicate the source of the material indexed: "ab" abstract under Current Literature; "br," Book Reviews; "cc," Current Comment; "ed," Editorial; "f," filler; "nn," News Notes. An asterisk indicates an original article in this JOURNAL. Book Reviews appear in the subject index under "Book Reviews." The author index, which follows the subject index, includes only the names of the authors of original material appearing in this JOURNAL in full or abstracted in the editorial section or in fillers, and the authors of books reviewed.

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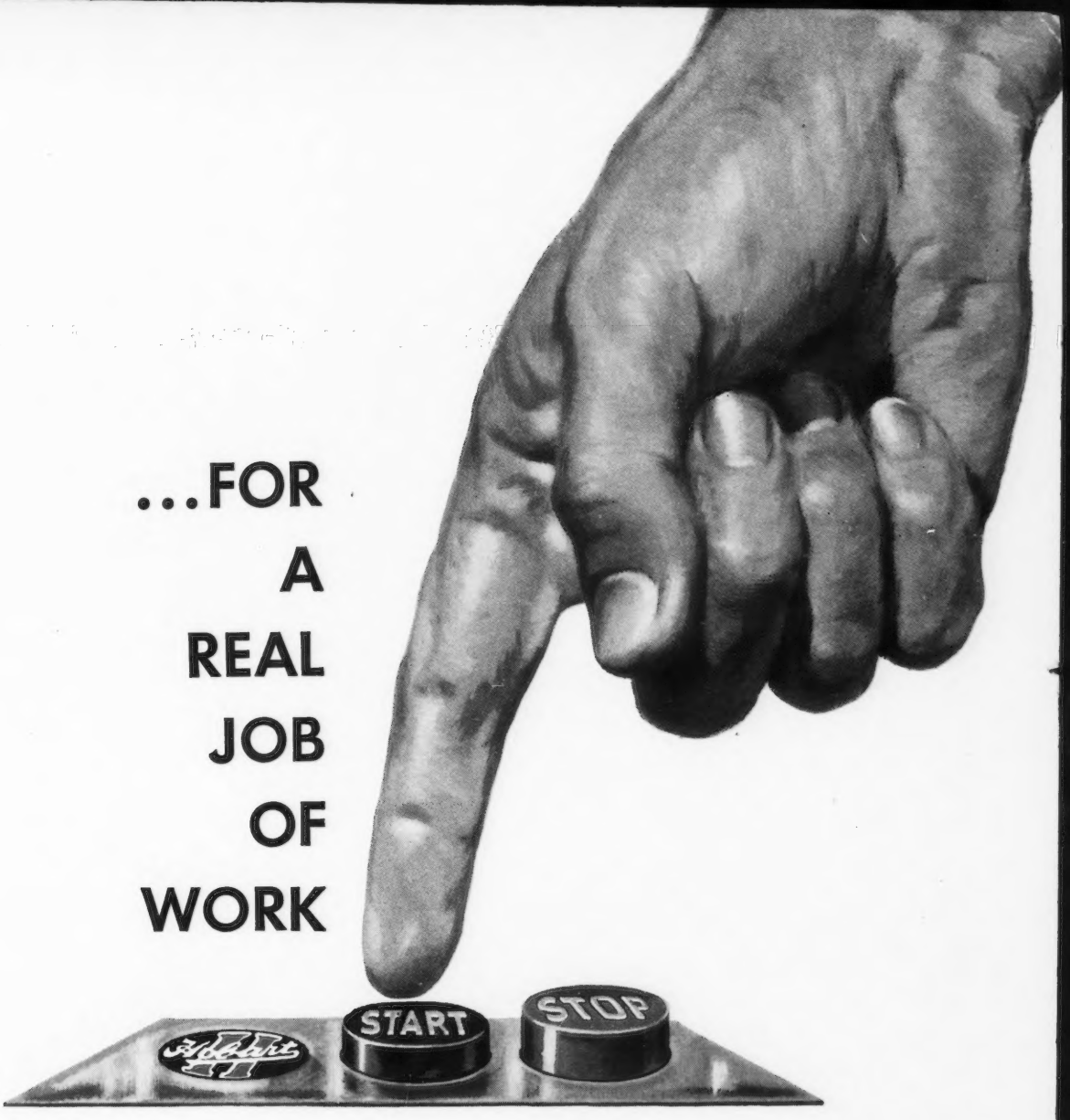

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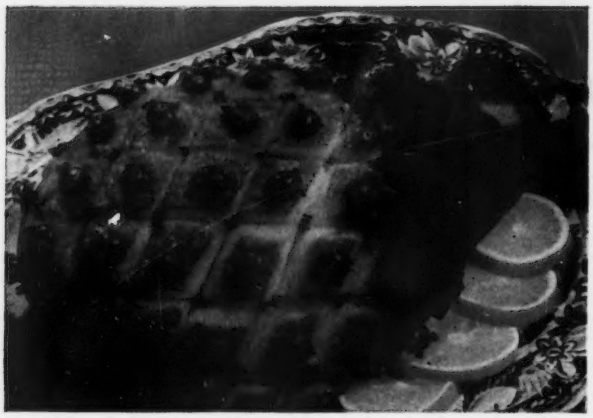
It's to your advantage to consolidate planning, purchasing and servicing—to concentrate on the most complete line in *our* industry proved by more than half a century of cooperation with *your* industry. Inquire through your local Hobart representation. It's at your fingertips too—eager to serve.

Hobart *Food Machines*

THE HOBART MANUFACTURING CO., TROY, OHIO • Factories in Troy, Dayton, Greenville, U. S. A.

The World's Largest Manufacturer of Food and Kitchen Machines

CANADA • BRAZIL • ENGLAND • AUSTRALIA • FRANCE



THE *Spice* TELLS

This all-important ingredient for your culinary achievements is so important that Sexton mills its own spices and scientifically packs these to bring them to you in all their rich savoriness. Sexton imports these fine spices from the four corners of the earth. Your investment in your other foods makes the cost of the very finest spices infinitesimal by comparison.

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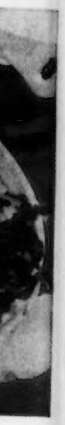
Good Food for *Pleased Guests*

1948 John Sexton & Co.



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